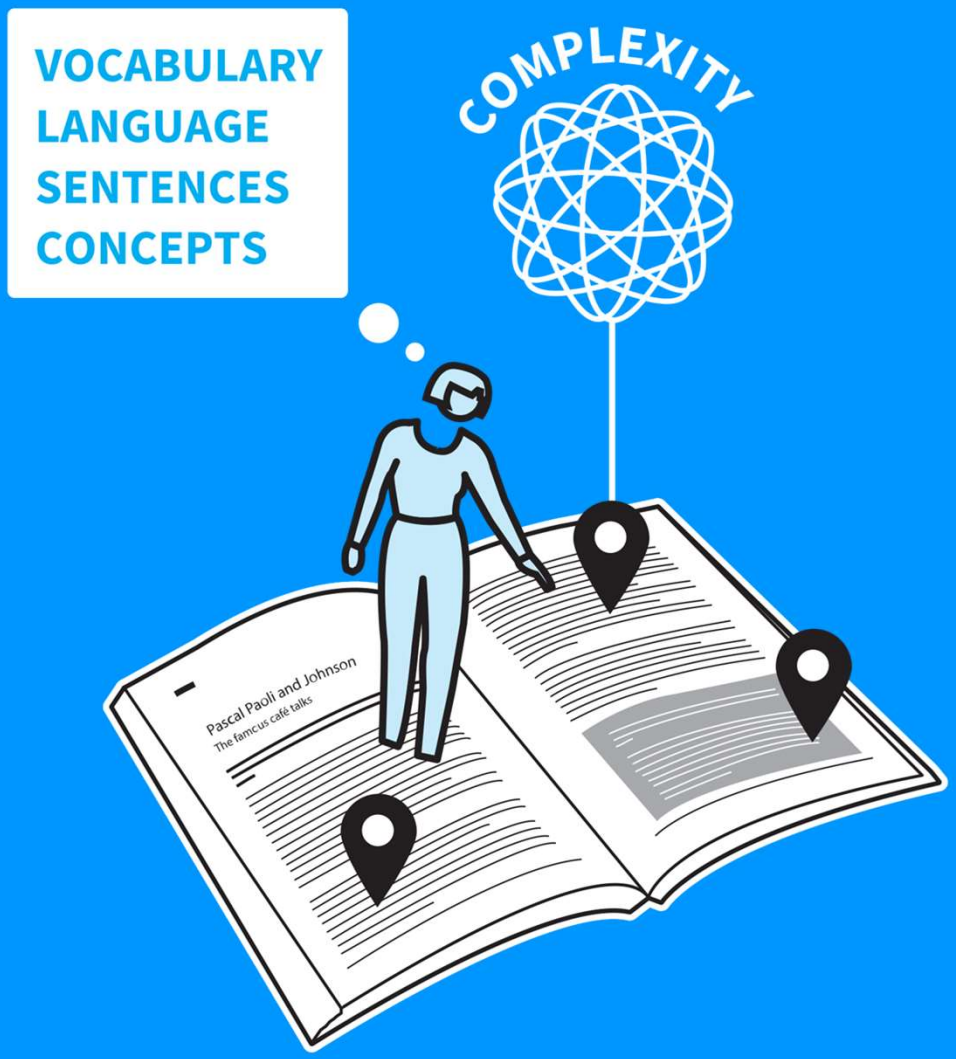
John Catt Educational

TEACHING
WALKTHRUs 2
PRESENTATION SLIDES

TOM SHERRINGTON & OLIVER CAVIGLIOLI

EXPLAINING & MODELLING



ALEX QUIGLEY | GUEST AUTHOR

PRE-READING INSTRUCTIONS FOR COMPLEX TEXTS

SERIES

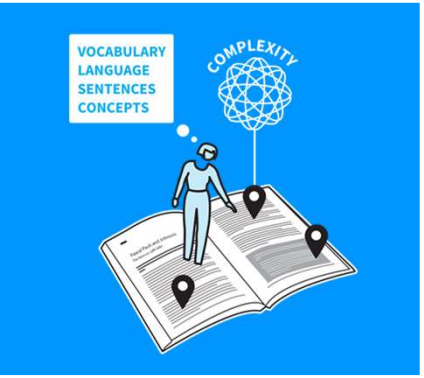
EXPLAINING & MODELLING

1. UNDERTAKE A READY RECKONER
2. CONNECT COMPLEX CONCEPTS AND KEYSTONE VOCABULARY
3. ACTIVATE PRIOR KNOWLEDGE AND RELATE
4. PROBE & QUESTION
5. PLAN FOR PAUSES

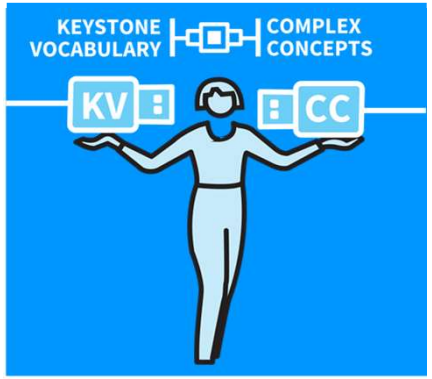
TEACHING WALKTHRUS A|D|A|P|T

PRE-READING INSTRUCTIONS FOR COMPLEX TEXTS

1 2 3 4 5



UNDERTAKE *A READY RECKONER*



CONNECT COMPLEX CONCEPTS AND *KEYSTONE VOCABULARY*

ACTIVATE PRIOR KNOWLEDGE AND *RELATE*

PROBE & QUESTION

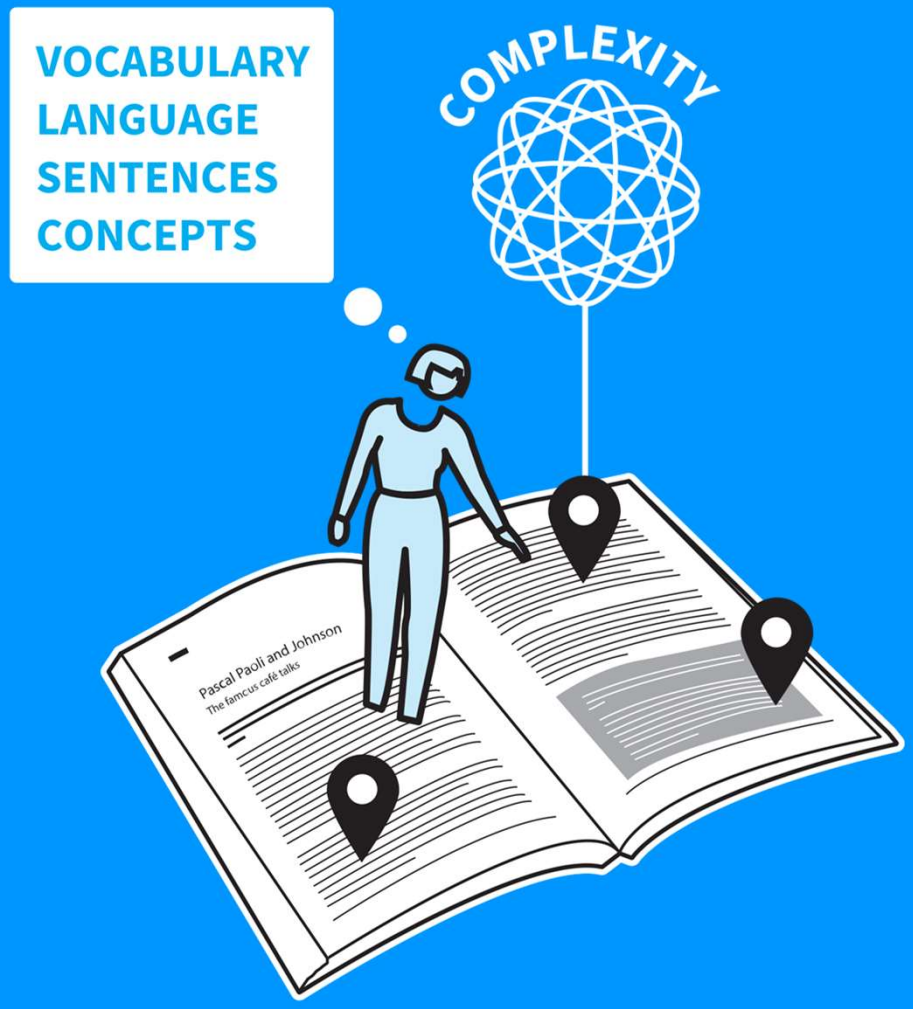
PLAN FOR PAUSES

TEACHING WALKTHRUS
SERIES
EXPLAINING & MODELLING
A|D|A|P|T

- The curriculum is mediated by students' academic reading ability. As reading skill opens up access to the curriculum, it is vital to focus instruction on successfully mediating reading complex texts, from science textbooks to historical sources.
- We cannot, and should not, dumb down our text choices. Instead, we need to pitch it up. But if we are to teach challenging texts, we need to ensure pre-reading instructions can offer access points into the text for all students.

PRE-READING INSTRUCTIONS FOR COMPLEX TEXTS

1 2 3 4 5

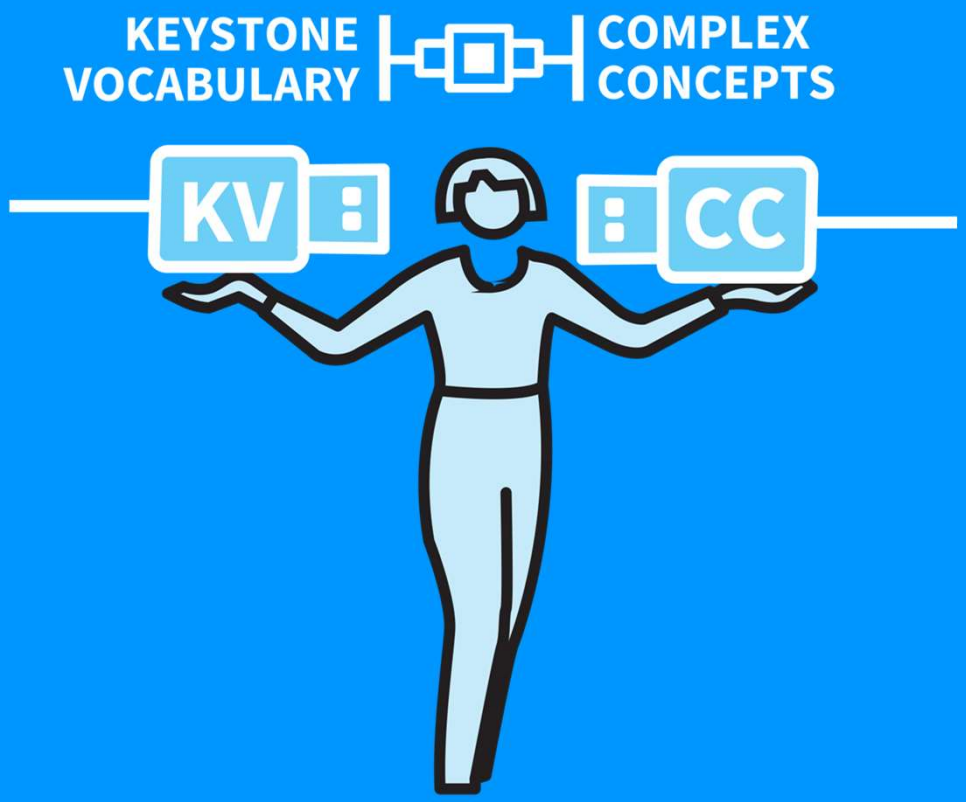


UNDERTAKE A *READY RECKONER*

- Select a portion of the text (e.g. first 200 words, or a page from a chapter) and then evaluate the complexity of that portion.
- Aspects that determine text complexity:
  - Rare, academic vocabulary
  - Language features e.g. metaphors
  - Sentence length
  - Range of complex concepts, big ideas
- The complexity of this sample will lead to decisions about pre-teaching.

PRE-READING INSTRUCTIONS FOR COMPLEX TEXTS

1 2 3 4 5



CONNECT COMPLEX CONCEPTS AND *KEYSTONE VOCABULARY*

- For complex texts, identify and pre-teach sophisticated concepts (such as particles and energy in science).
- Explicitly identify the related core vocabulary that is essential to communicating those concepts.
- Keystone vocabulary items can be explicitly identified, taught and revisited as part of a coherently mapped reading curriculum, e.g. *atoms, molecules, ions*.

PRE-READING INSTRUCTIONS FOR COMPLEX TEXTS

1 2 3 4 5

ACTIVATE PRIOR KNOWLEDGE AND *RELATE*

- Explicitly activate students' prior knowledge, e.g. when reading a Shakespearean sonnet in English literature, relate it to other poetic genres and knowledge about Shakespearean plays.
- Novice students can miss seemingly obvious connections. Connect keystone vocabulary items to words they know already to allow for better developed schemas for the text.

PRE-READING INSTRUCTIONS FOR COMPLEX TEXTS

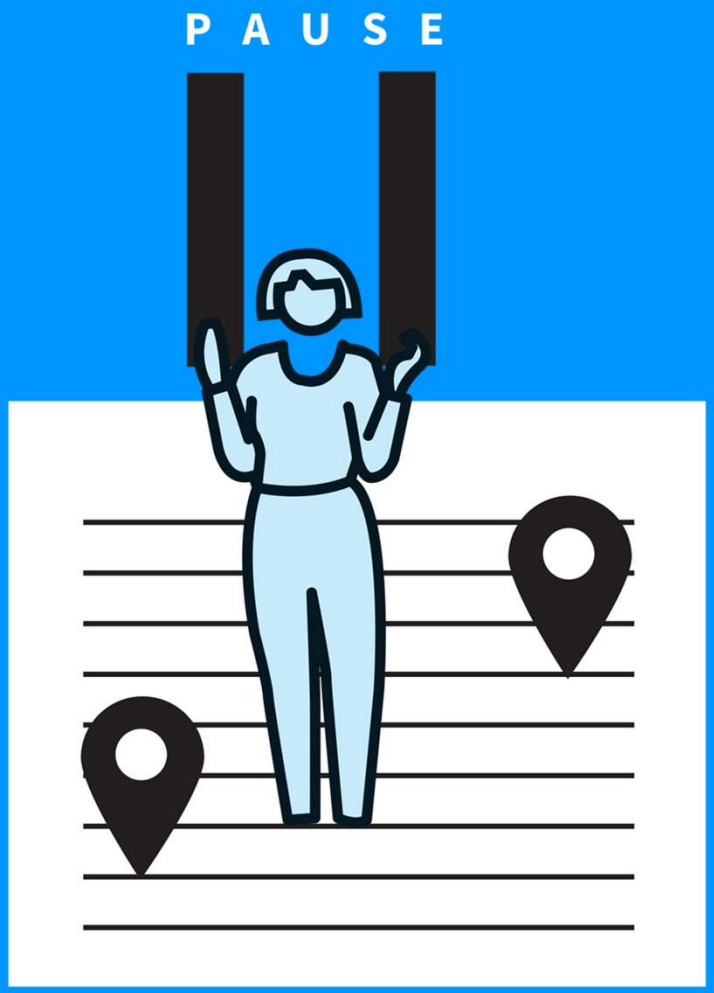
1 2 3 4 5

PROBE & QUESTION

- Before reading a text in class fully, use **Probing Questions**, via **Cold Calling**, to ascertain a representative level of prior knowledge for complex concepts and *keystone vocabulary*.
- *e.g. in history, a probing question about students' knowledge of Tudor kings and queens can precede reading a source that evaluates the Wars of the Roses.*
- If responses are limited, recalibrate how much pre-reading instruction is needed before going onto reading further texts.

PRE-READING INSTRUCTIONS FOR COMPLEX TEXTS

1 2 3 4 5

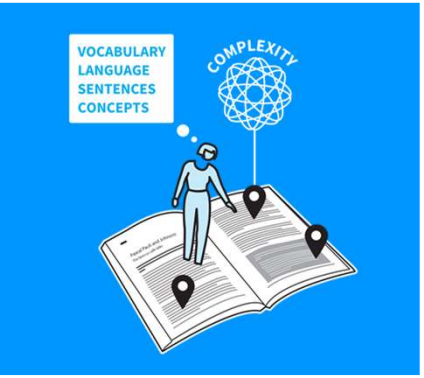


PLAN FOR PAUSES

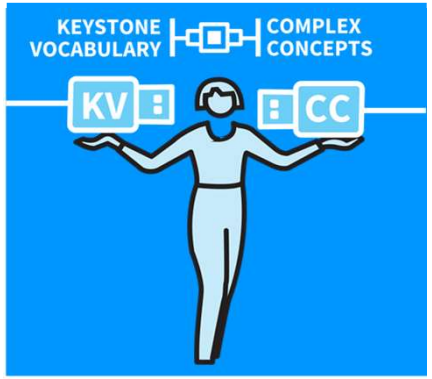
- Complex academic texts can place a high demand on our students' working memory.
- Simply following each sentence can initiate a high demand for prior knowledge and vocabulary recognition.
- With this mind, it is helpful to identify specific pauses in the text, with a few targeted questions to **Check for Understanding** before initiating reading once more.

PRE-READING INSTRUCTIONS FOR COMPLEX TEXTS

1 2 3 4 5



UNDERTAKE *A READY RECKONER*



CONNECT COMPLEX CONCEPTS AND *KEYSTONE VOCABULARY*

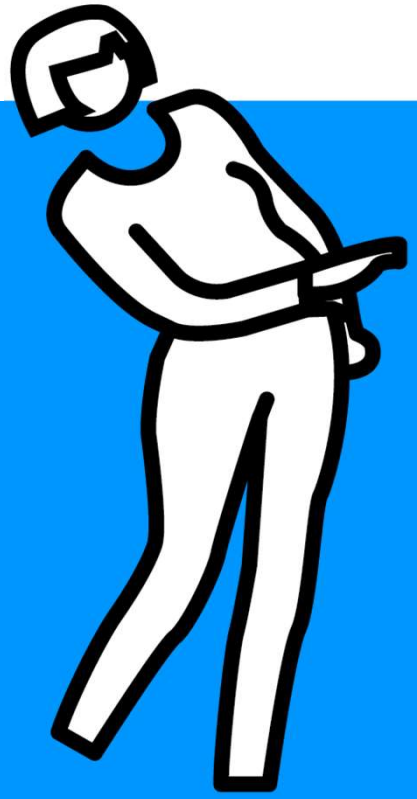
ACTIVATE PRIOR KNOWLEDGE AND *RELATE*

PROBE & QUESTION

PLAN FOR PAUSES

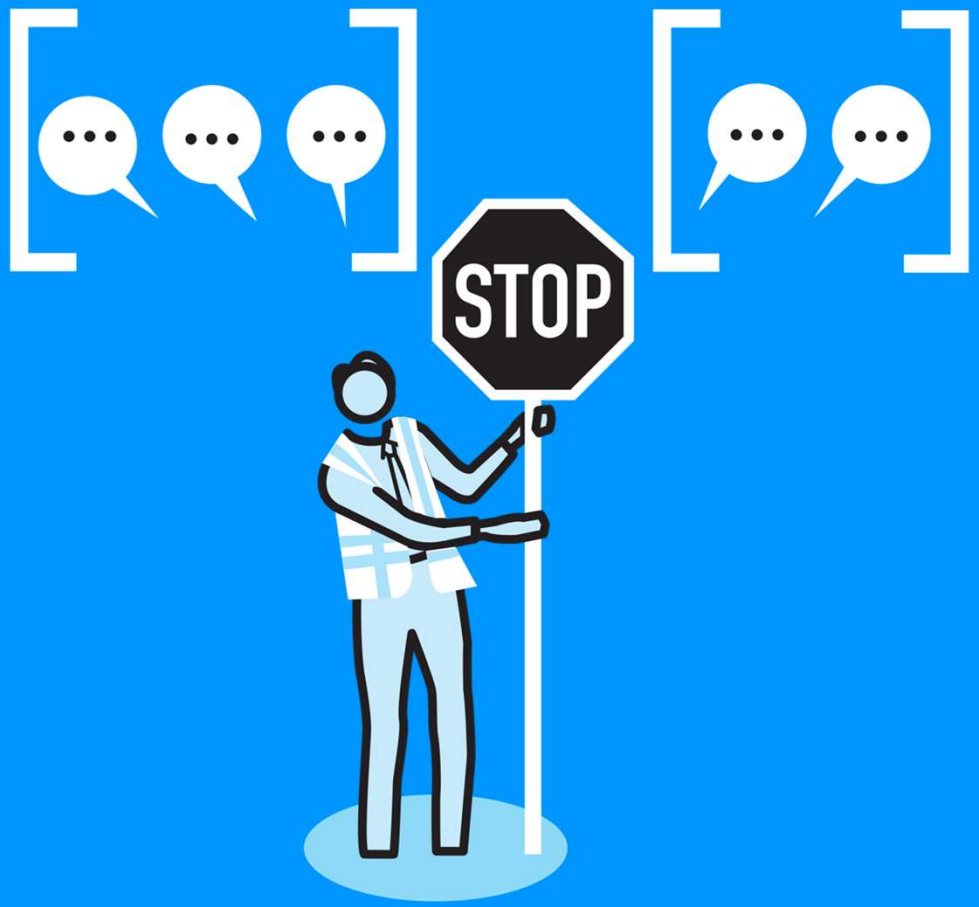
TEACHING WALKTHRUS
SERIES
EXPLAINING & MODELLING
A|D|A|P|T

- The curriculum is mediated by students' academic reading ability. As reading skill opens up access to the curriculum, it is vital to focus instruction on successfully mediating reading complex texts, from science textbooks to historical sources.
- We cannot, and should not, dumb down our text choices. Instead, we need to pitch it up. But if we are to teach challenging texts, we need to ensure pre-reading instructions can offer access points into the text for all students.



NEXT UP

WHOLE-CLASS READING ROUTINES



ALEX QUIGLEY | GUEST AUTHOR

WHOLE-CLASS READING ROUTINES

SERIES

EXPLAINING & MODELLING

1. EVALUATE YOUR WHOLE-CLASS READING OPTIONS
2. ANNOTATE & PRACTISE
3. EXPRESS & STRESS
4. CHUNK & STOP
5. ESTABLISH THE GIST

TEACHING WALKTHRUS | A|D|A|P|T

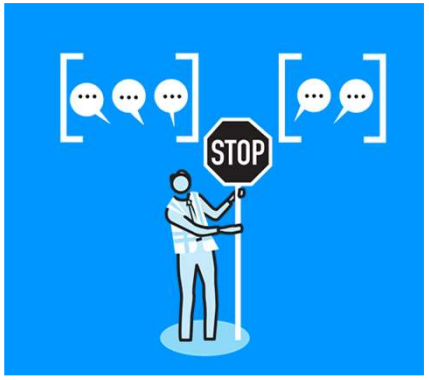
WHOLE-CLASS READING ROUTINES

1 2 3 4 5

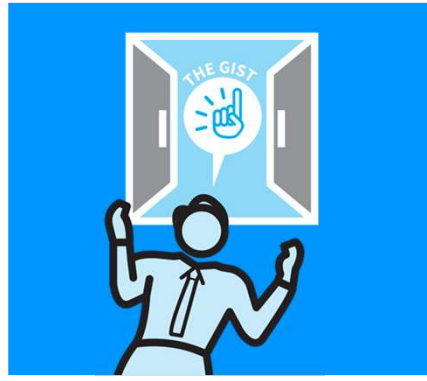
EVALUATE YOUR WHOLE-CLASS READING OPTIONS

ANNOTATE & PRACTISE

EXPRESS & STRESS



CHUNK & STOP



ESTABLISH THE GIST

TEACHING WALKTHRUS
SERIES
EXPLAINING & MODELLING
A|D|A|P|T

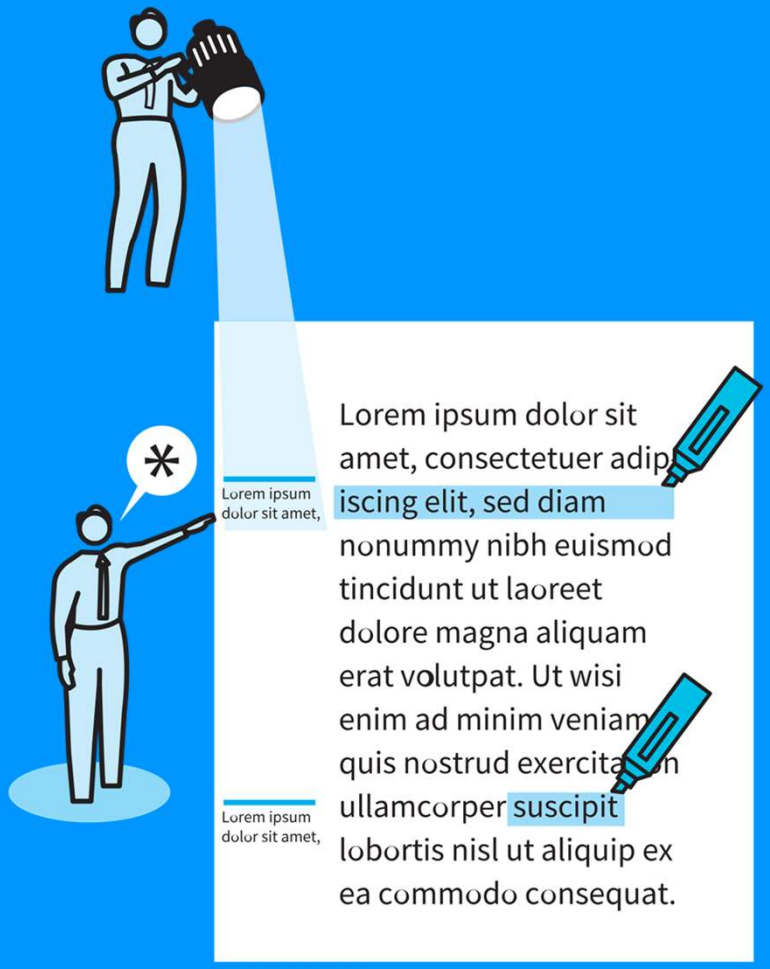
- Teachers read academic texts to their students daily. This can total thousands of acts of academic reading. As reading to a whole class becomes routine and habitual, it can be enacted without much reflection, resulting in variable success.
- Teachers can make evidence-informed decisions about reading more precisely to the whole class. There are a variety of options; different classroom approaches benefit different reading outcomes.

WHOLE-CLASS READING ROUTINES

EVALUATE YOUR WHOLE-CLASS READING OPTIONS

- The most common approach is teacher-led whole-class reading. This offers a reading role model with a high degree of skill and fluency but doesn't develop students as fluent readers.
- These approaches can support students' reading:
  - Choral reading: students read along with the teacher in unison.
  - Paired reading: small groups read collaboratively, aiding students' own reading skills, albeit less fluently.

WHOLE-CLASS READING ROUTINES



ANNOTATE & PRACTISE

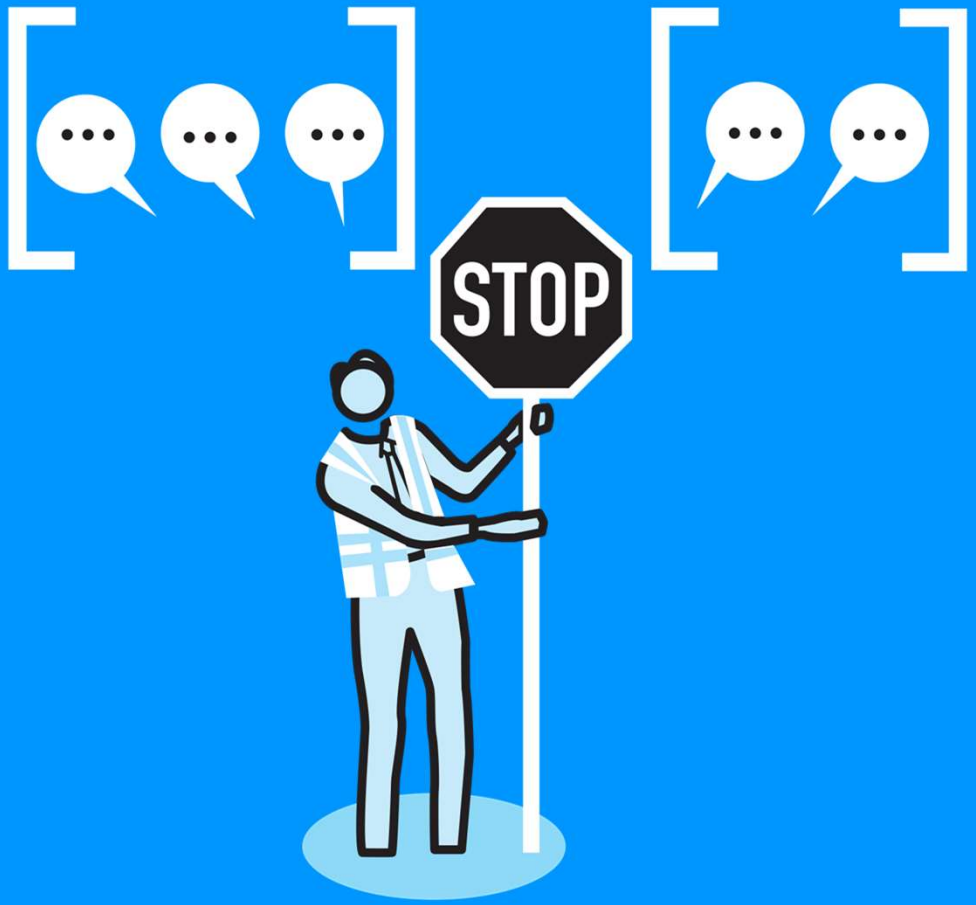
- A productive use of lesson planning can include concise annotations for a complex academic text to be read in class.
- Underlining key words and phrases to stress and emphasise can support the performance of reading (which can aid student reading comprehension) and identify keystone vocabulary.
- For significant passages, a speedy practice of reading the passage aloud should aid fluent teacher reading.

WHOLE-CLASS READING ROUTINES

EXPRESS & STRESS

- An adept reading performance in class can aid the understanding of complex concepts. Teachers should read with a smooth pace, but also explicitly emphasise and stress the most important vocabulary items in a text.
- Academic texts include dense noun phrases unfamiliar for students, e.g. in geography, *global atmospheric circulation*; *conservative plate margin* require careful, clear expression.
- Other words need to be stressed to convey their importance.

WHOLE-CLASS READING ROUTINES



CHUNK & STOP

- Academic texts can be dense with complex vocabulary and concepts, but chunking down into readable parts can determine how well students process their reading.
- Textbooks typically offer natural chunks and stopping points to check understanding, but these are not always evident; often the teacher has to identify stopping points independently.
- In other types of texts, stopping points can be identified at the planning stage.

WHOLE-CLASS READING ROUTINES

ESTABLISH THE GIST

- Whole-class reading for a sustained period of time can place high cognitive demand on the teacher and students.
- It's important, therefore, to plan to consolidate understanding:
  - Give the concise gist of the text, or elicit this information from students.
  - Use targeted identification and re-reading of important sentences to ensure clarity and reiterate the most important concepts of the text.

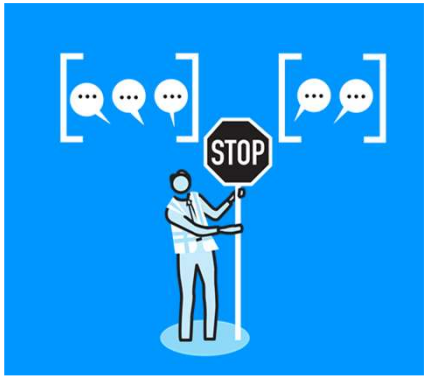
WHOLE-CLASS READING ROUTINES

1 2 3 4 5

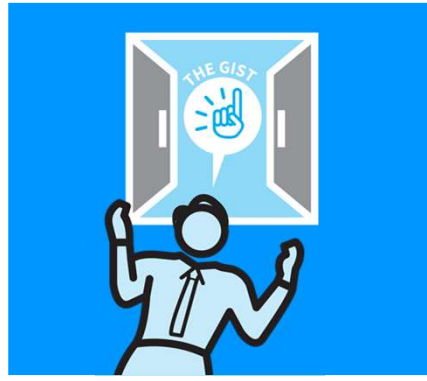
EVALUATE YOUR WHOLE-CLASS READING OPTIONS

ANNOTATE & PRACTISE

EXPRESS & STRESS



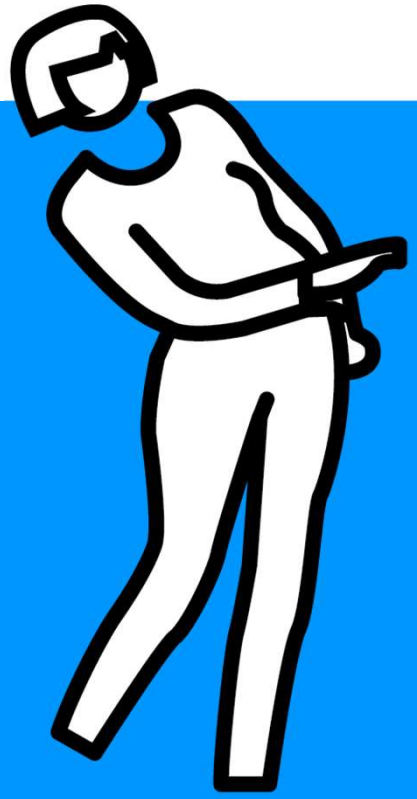
CHUNK & STOP



ESTABLISH THE GIST

TEACHING WALKTHRUS
SERIES
EXPLAINING & MODELLING
A|D|A|P|T

- Teachers read academic texts to their students daily. This can total thousands of acts of academic reading. As reading to a whole class becomes routine and habitual, it can be enacted without much reflection, resulting in variable success.
- Teachers can make evidence-informed decisions about reading more precisely to the whole class. There are a variety of options; different classroom approaches benefit different reading outcomes.



NEXT UP

DEVELOPING READING FLUENCY

ALEX QUIGLEY | GUEST AUTHOR

DEVELOPING READING FLUENCY

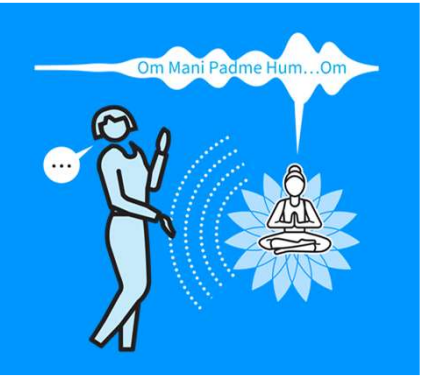
SERIES

EXPLAINING & MODELLING

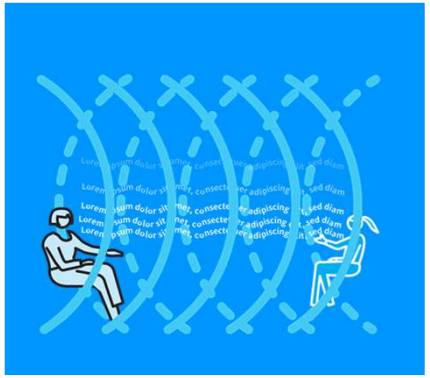
1. TEACHER MODELLING OF READING FLUENCY
2. ECHO READING
3. PAIRED READING
4. SEGMENTING SENTENCES
5. READ & RECORD

TEACHING WALKTHRUS | A|D|A|P|T

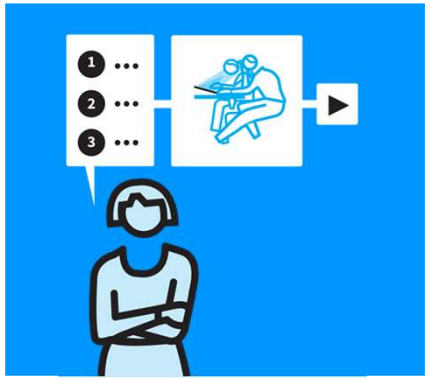
DEVELOPING READING FLUENCY



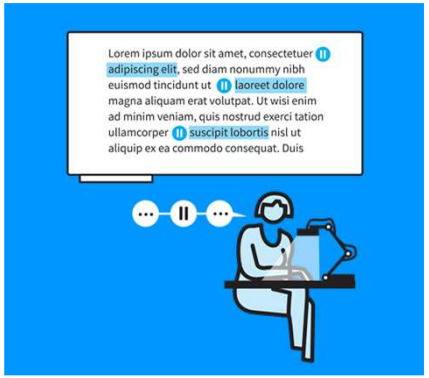
TEACHER MODELLING OF READING FLUENCY



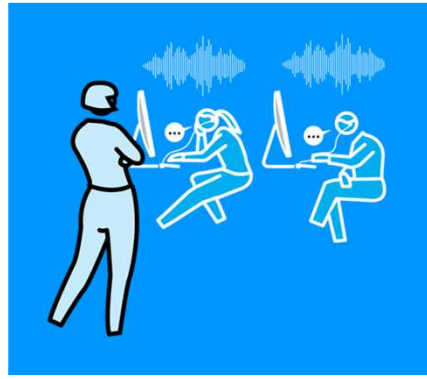
ECHO READING



PAIRED READING



SEGMENTING SENTENCES



READ & RECORD

TEACHING WALKTHRUS
SERIES
EXPLAINING & MODELLING
A|D|A|P|T

Reading fluency is an important prerequisite for students to read and comprehend academic texts, concentrating their working memory on the complexity of the text. Researchers* have identified four dimensions of reading fluency:

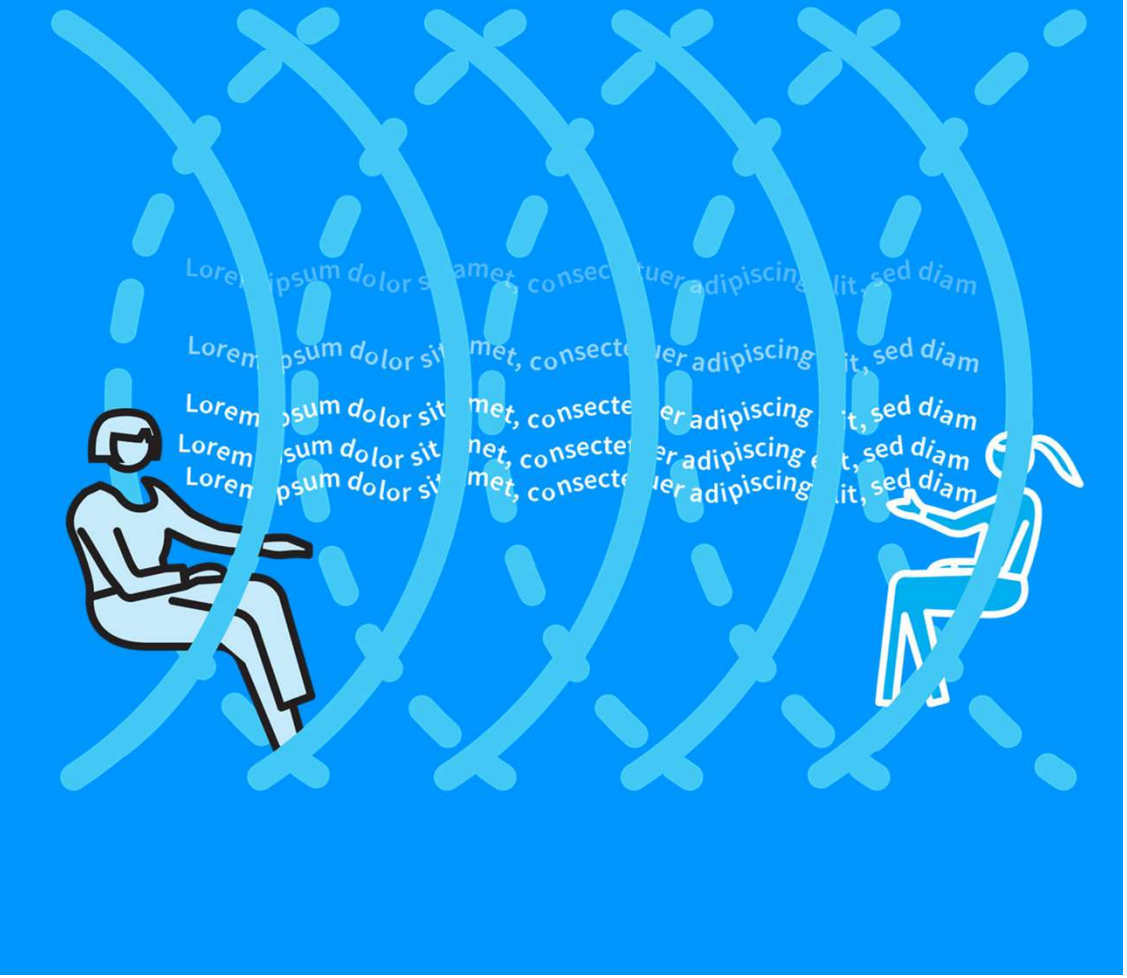
- Expression and volume: varying expression and volume to match the content
- Phrasing: identifying clauses and emphasising words that are read together
- Smoothness: avoiding breaks or pauses
- Pace: an even, conversational rhythm

DEVELOPING READING FLUENCY

TEACHER MODELLING OF READING FLUENCY

- It is helpful for students to hear models of fluent, skilled reading of academic texts. Modelling reading fluency can include the explicit review of the teacher's performance, using the language of the four fluency dimensions.
- Teachers can initiate an explanation of their own reading performance: an RE teacher may discuss their phrasing of Buddhist chanting to ensure comprehension of the textbook chapter.

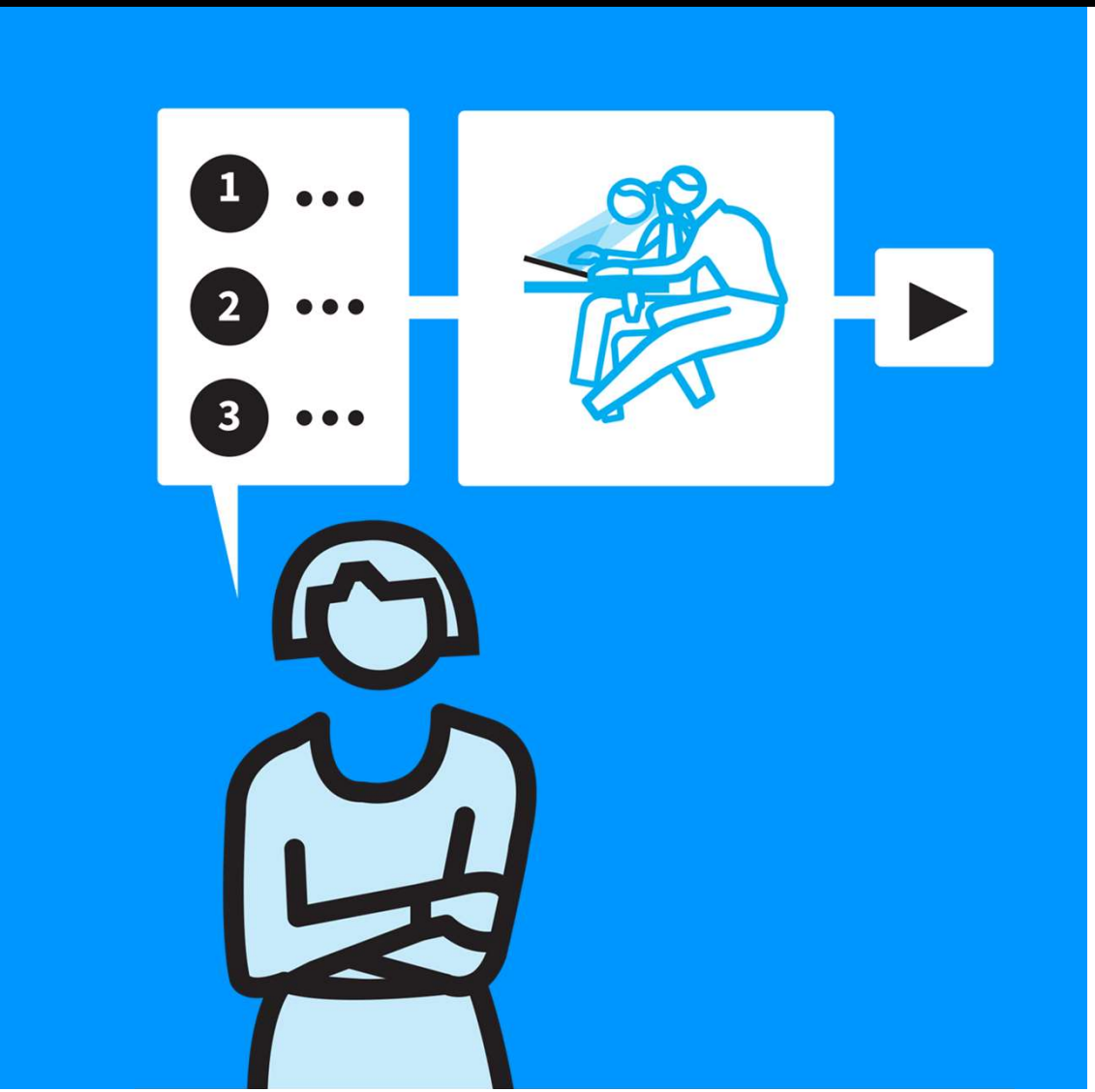
DEVELOPING READING FLUENCY



ECHO READING

- Echo reading describes when a teacher models a passage, with the specific follow-up of pupils then reading the same passage.
- This is appropriate for an important passage to be read in class, such as a poem in English literature, or an important political speech in history.
- Having experienced the expert teacher version, imitation can increase students' own reading fluency and repetition can foster consolidation of the content.

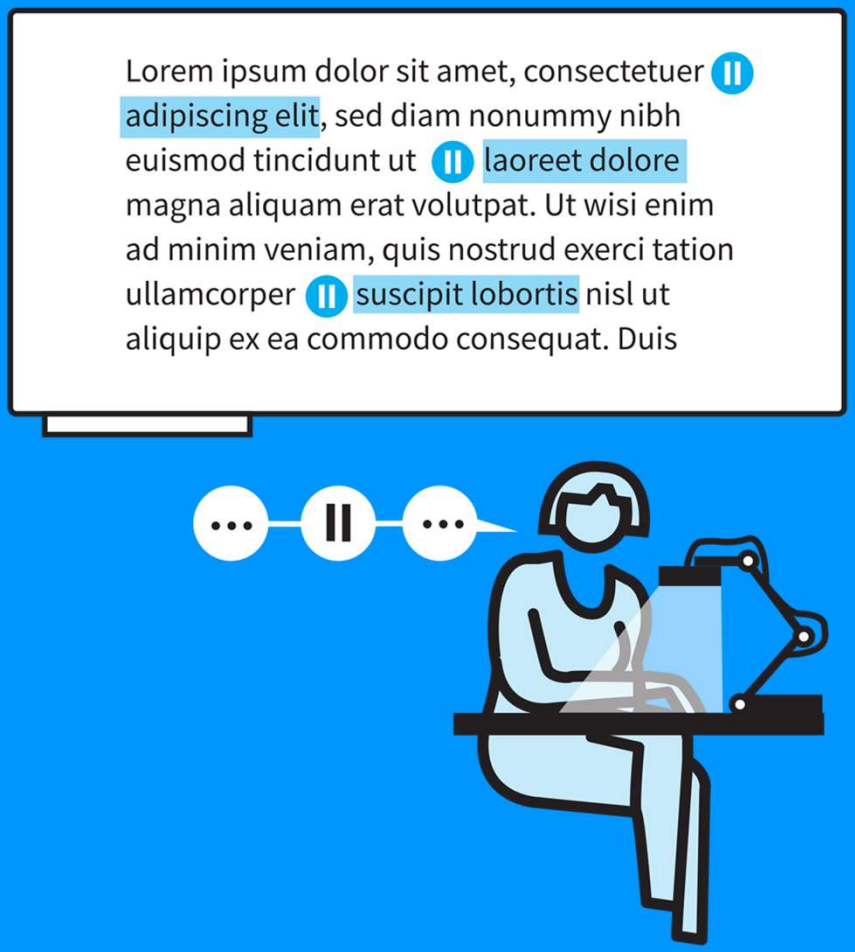
DEVELOPING READING FLUENCY



PAIRED READING

- Students can read in pairs, e.g. reading alternate sentences of a given shared text, or repeating sentences after their partner has read them.
- This can support students to assess the fluency of one another, offering a metacognitive support to further improve their own reading fluency.
- Whole-class talk about reading fluency and clear, precise instructions are needed to maximise the gains from the collaborative strategy.

DEVELOPING READING FLUENCY



SEGMENTING SENTENCES

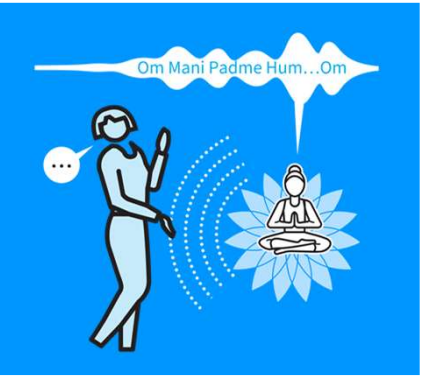
- Students may not notice an author's subtle cues. Complex sentence structures trip them up; dense noun phrases – e.g. 'organic, nutrient-rich materials' from soil erosion in geography – are not read with clarity or fluency.
- Identifying phrases (e.g. by following with a visualiser) in meaningful chunks aids fluency, supporting comprehension.
- For younger pupils, chunking phrases with your fingers on the page can offer additional support.

DEVELOPING READING FLUENCY

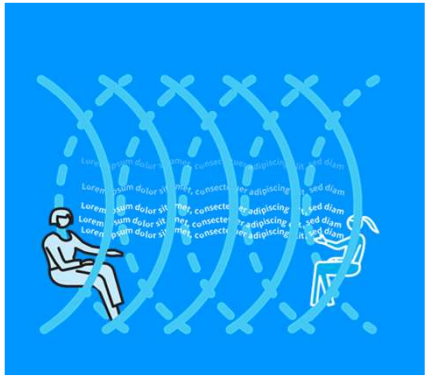
READ & RECORD

- Digital technology offers manageable and meaningful opportunities to foster and record reading fluency.
- Students can record their own reading performances before then critiquing their own performance, or that of their peers.
- The teacher can play back their reading for repetition to consolidate understanding and foreground aspects of reading fluency in performance.

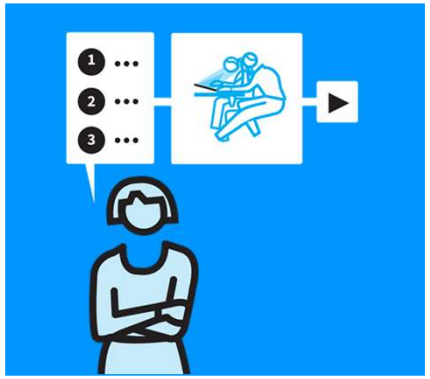
DEVELOPING READING FLUENCY



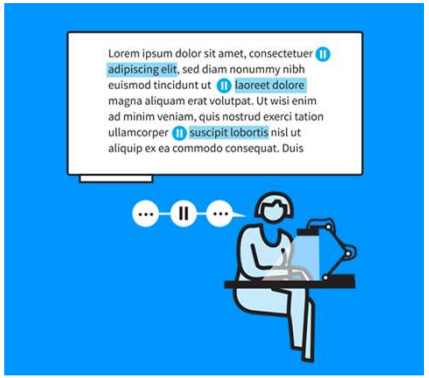
TEACHER MODELLING OF READING FLUENCY



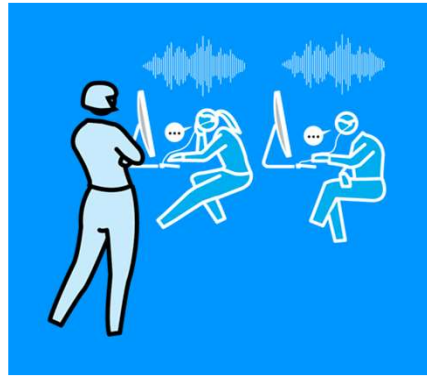
ECHO READING



PAIRED READING



SEGMENTING SENTENCES

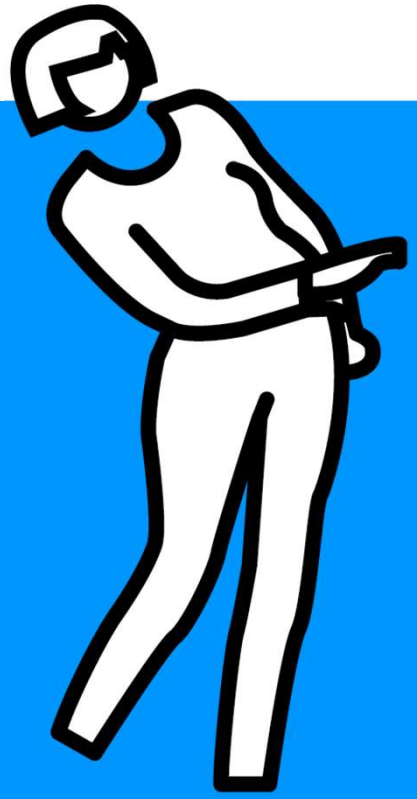


READ & RECORD

TEACHING WALKTHRUS
SERIES
EXPLAINING & MODELLING
A|D|A|P|T

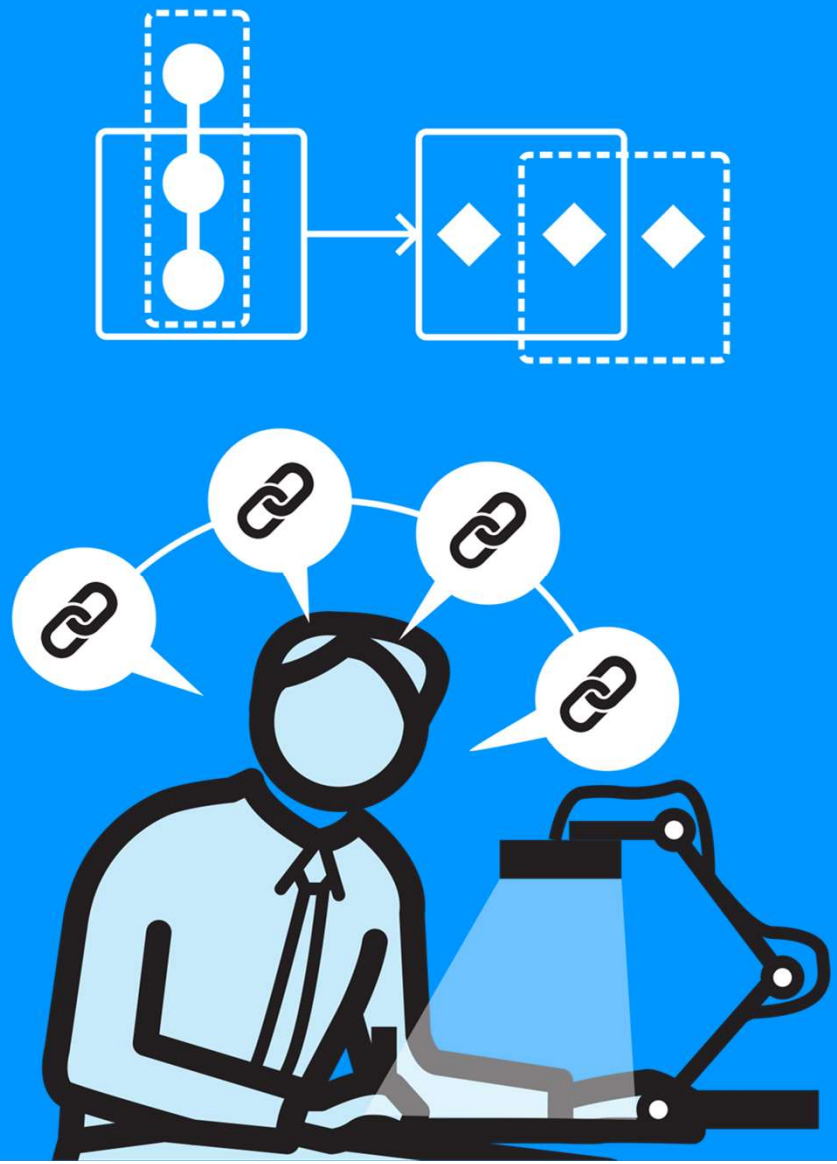
Reading fluency is an important prerequisite for students to read and comprehend academic texts, concentrating their working memory on the complexity of the text. Researchers* have identified four dimensions of reading fluency:

- Expression and volume: varying expression and volume to match the content
- Phrasing: identifying clauses and emphasising words that are read together
- Smoothness: avoiding breaks or pauses
- Pace: an even, conversational rhythm



NEXT UP

SUMMARISING ACADEMIC READING



ALEX QUIGLEY | GUEST AUTHOR

SUMMARISING ACADEMIC READING

SERIES

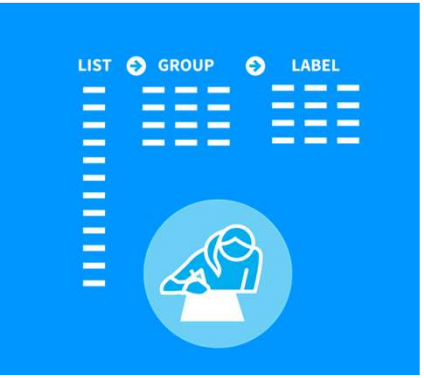
EXPLAINING & MODELLING

1. LIST, GROUP, LABEL
2. SHRINK & SUMMARISE
3. SUPPORT YOUR SUMMARY
4. GO GLOBAL
5. READ, WRITE, ELABORATE

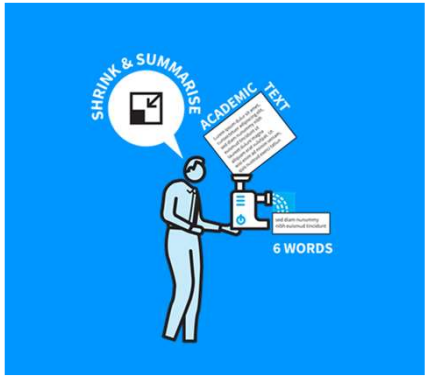
TEACHING WALKTHRUS | A|D|A|P|T

SUMMARISING ACADEMIC READING

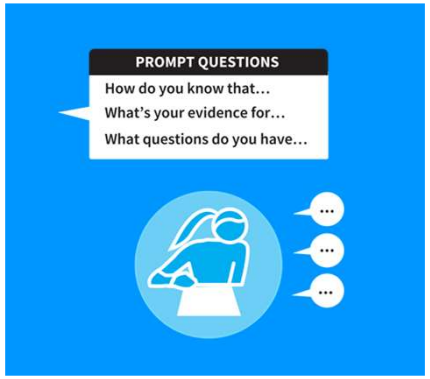
1 2 3 4 5



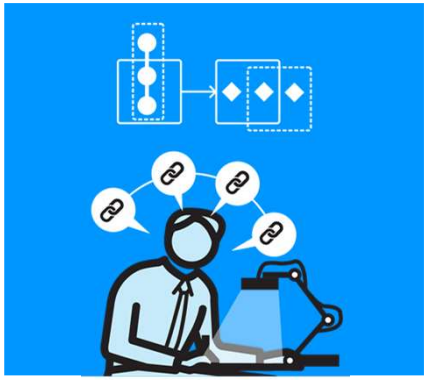
LIST, GROUP, LABEL



SHRINK & SUMMARISE



SUPPORT YOUR SUMMARY



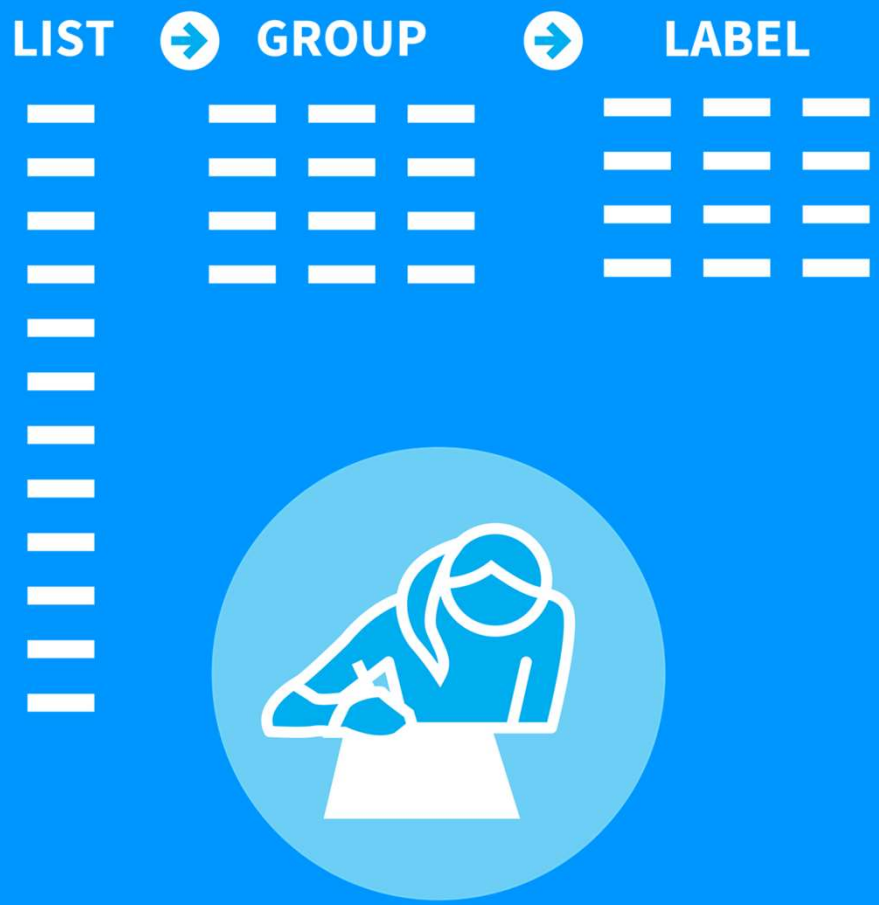
GO GLOBAL

READ, WRITE, ELABORATE

TEACHING WALKTHRUS
SERIES
EXPLAINING & MODELLING
A|D|A|P|T

- Reading may appear natural for many students, reading with some fluency, but they lack the background and vocabulary knowledge to fully comprehend a tricky text.
- Novice students may not actively develop a rich schema for a text, unlike experts who initiate reading strategies, habitually making predictions, question, summarise.
- Explicitly teaching reading comprehension strategies such as summarising, can prove a powerful tool to enhance reading comprehension.

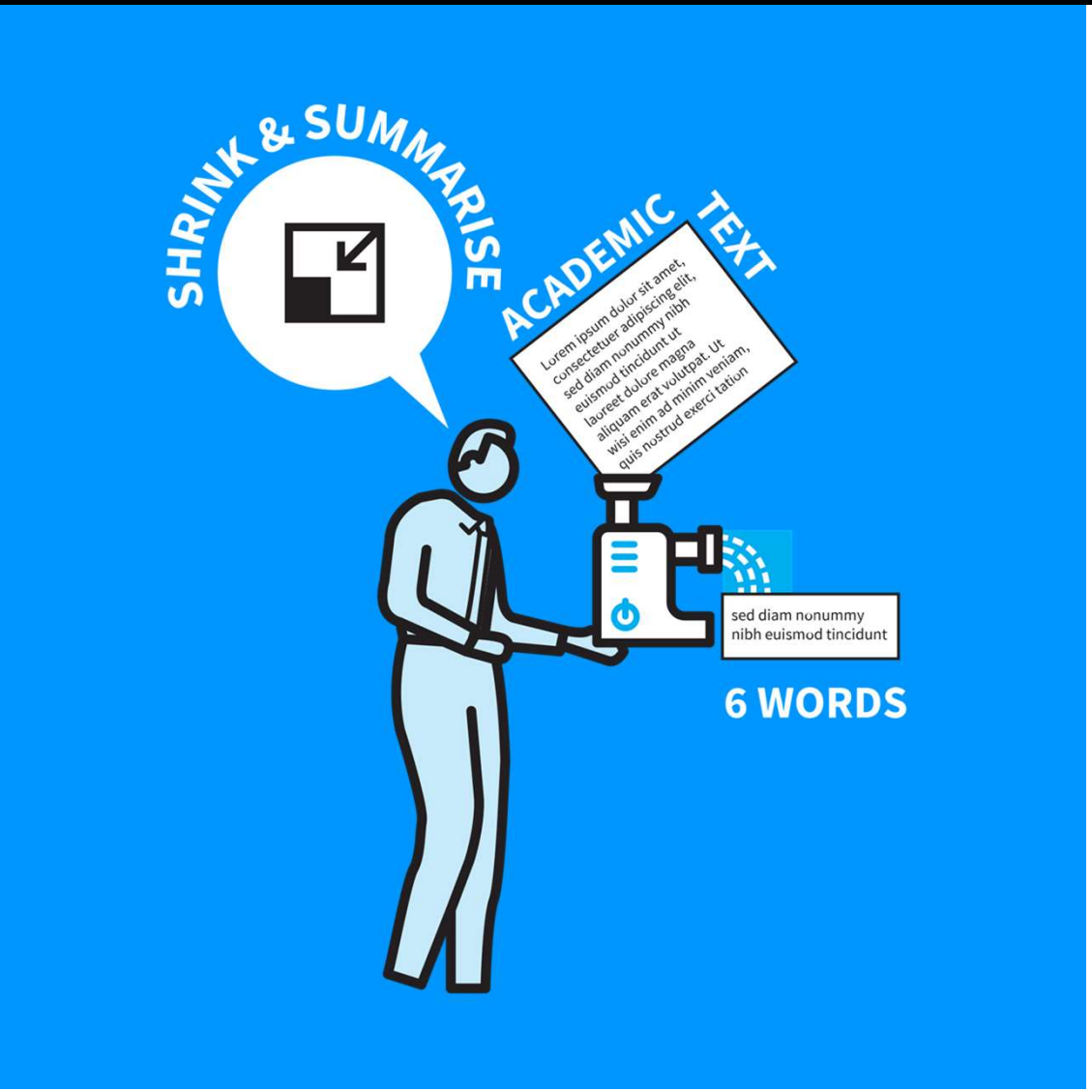
SUMMARISING ACADEMIC READING



LIST, GROUP, LABEL

- A well-established strategy to synthesise key information to summarise an academic text is *list, group, label*.
  - First, select a small number of key topics or ideas from the text.
  - Then list as many vocabulary items and ideas related to the category or categories.
  - Then cluster those words and ideas more accurately into sub-categories.
- This helps students make connections and develop a rich schema for the text.

SUMMARISING ACADEMIC READING

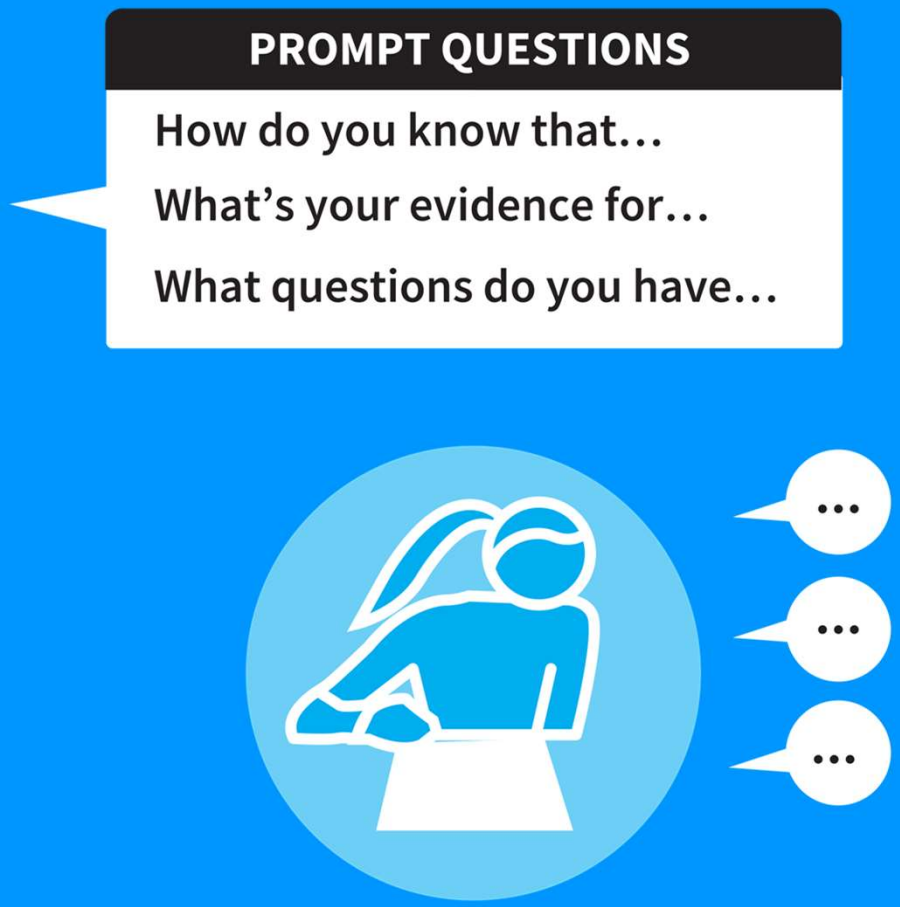


SHRINK & SUMMARISE

- Novice readers can struggle to identify and isolate the most salient features in a given academic text.
- Explicitly model how to summarise in a concise, purposeful manner. e.g. ***6-word summaries*** are a quick, succinct approach to distilling the essential meaning of a text of any length.
- With practice, students can summarise independently in concise, precise ways.
- Encourage reflection on the success of single-sentence summaries.

SUMMARISING ACADEMIC READING

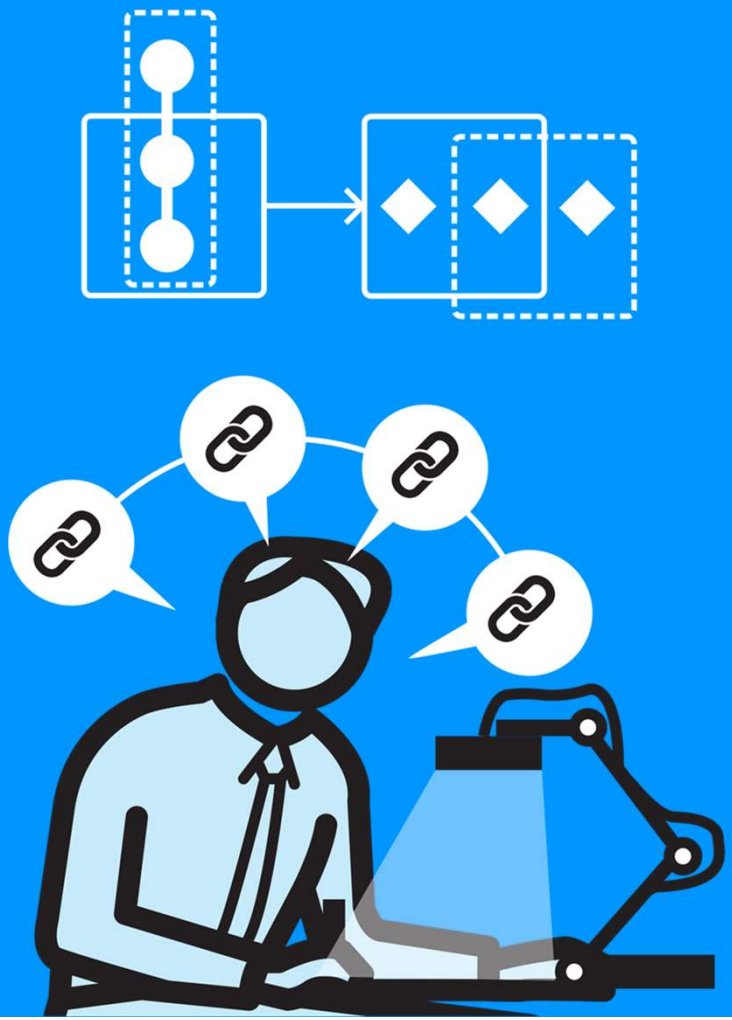
1 2 3 4 5



SUPPORT YOUR SUMMARY

- Invite students to elaborate on their summary, providing supporting evidence, in written form or verbally.
- Self-explanation can help students better connect their developing schemas for any given text.
- Offer question prompts to initiate talk, where students explain and elaborate:
  - How do you know that…?
  - What is your evidence for…?
  - What questions do you have…?

SUMMARISING ACADEMIC READING



GO GLOBAL

- Novice students might fail to enact the schema-building strategies of expert readers. They read about genetics and inheritance in science, but fail to make connections to their prior reading and knowledge of living organisms and cells.
- Teachers can explicitly model *global inferences* with strategies such as visually mapping related topics. Ask students to zoom in on individual words and sentences, before then zooming out to the big picture of the text.

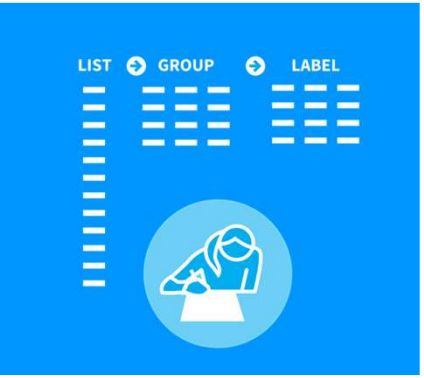
SUMMARISING ACADEMIC READING

READ, WRITE, ELABORATE

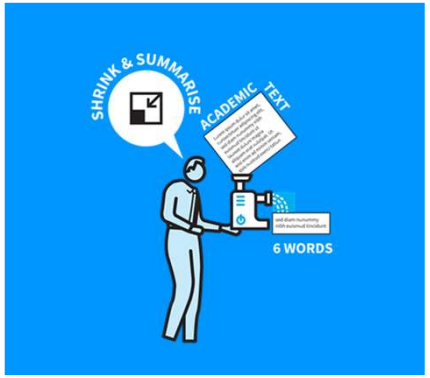
- Writing about what you read provides a record of what has been read. Ample research indicates that elaborating on your reading enhances comprehension.
- Strategies, such as encouraging the design of summary flashcards, help students to explicitly transform the information from a given text and to summarise it in a concise record.
- Such tools support retrieval practice, revisiting the academic text in an active, productive fashion.

SUMMARISING ACADEMIC READING

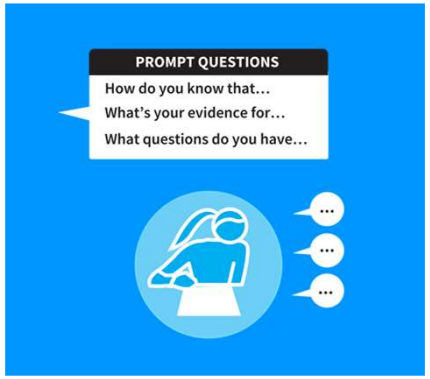
1 2 3 4 5



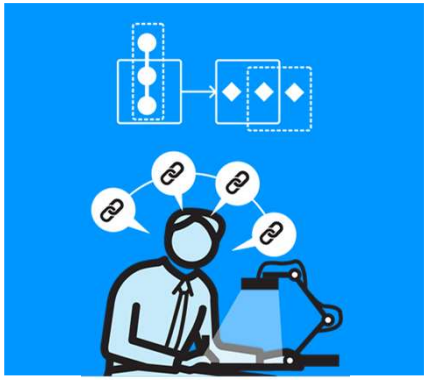
LIST, GROUP, LABEL



SHRINK & SUMMARISE



SUPPORT YOUR SUMMARY

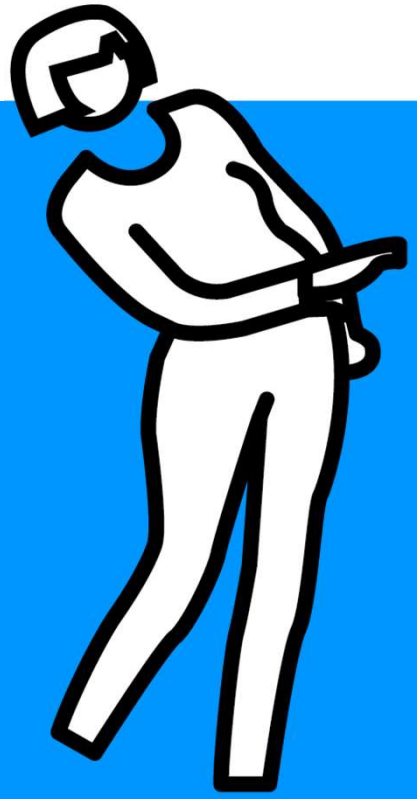


GO GLOBAL

READ, WRITE, ELABORATE

TEACHING WALKTHRUS
SERIES EXPLAINING & MODELLING
A|D|A|P|T

- Reading may appear natural for many students, reading with some fluency, but they lack the background and vocabulary knowledge to fully comprehend a tricky text.
- Novice students may not actively develop a rich schema for a text, unlike experts who initiate reading strategies, habitually making predictions, question, summarise.
- Explicitly teaching reading comprehension strategies such as summarising, can prove a powerful tool to enhance reading comprehension.



NEXT UP

GIVING PRACTICAL DEMONSTRATIONS

GIVING PRACTICAL DEMONSTRATIONS

SERIES

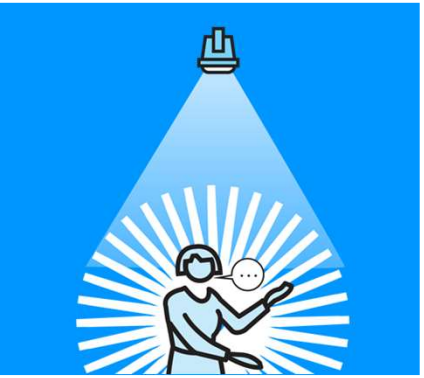
EXPLAINING & MODELLING

1. SECURE ATTENTION
2. SET THE SCENE
3. DEMONSTRATE IN SMALL STEPS
4. CHECK FOR UNDERSTANDING
5. CONSOLIDATE THE LEARNING

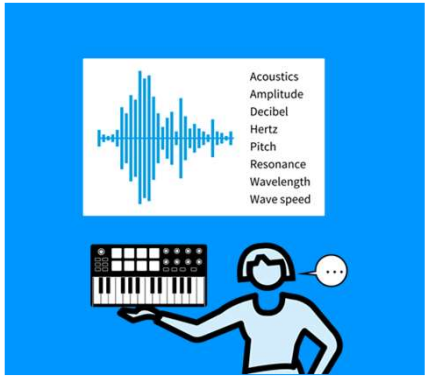
TEACHING WALKTHRUS A|D|A|P|T

GIVING PRACTICAL DEMONSTRATIONS

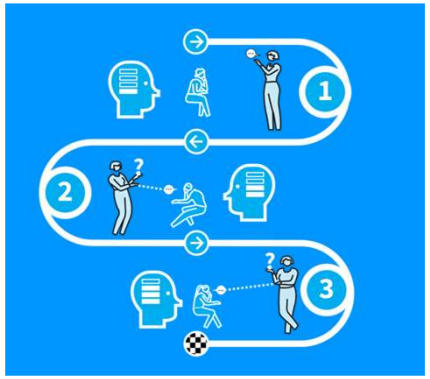
1 2 3 4 5



SECURE ATTENTION

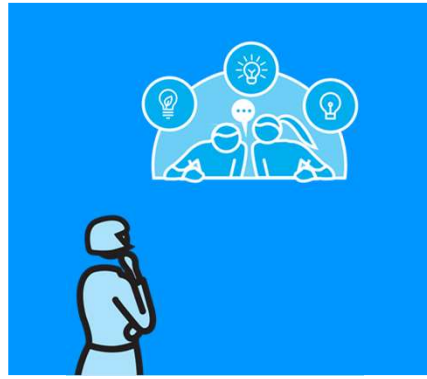


SET THE SCENE



DEMONSTRATE IN SMALL STEPS

CHECK FOR UNDERSTANDING



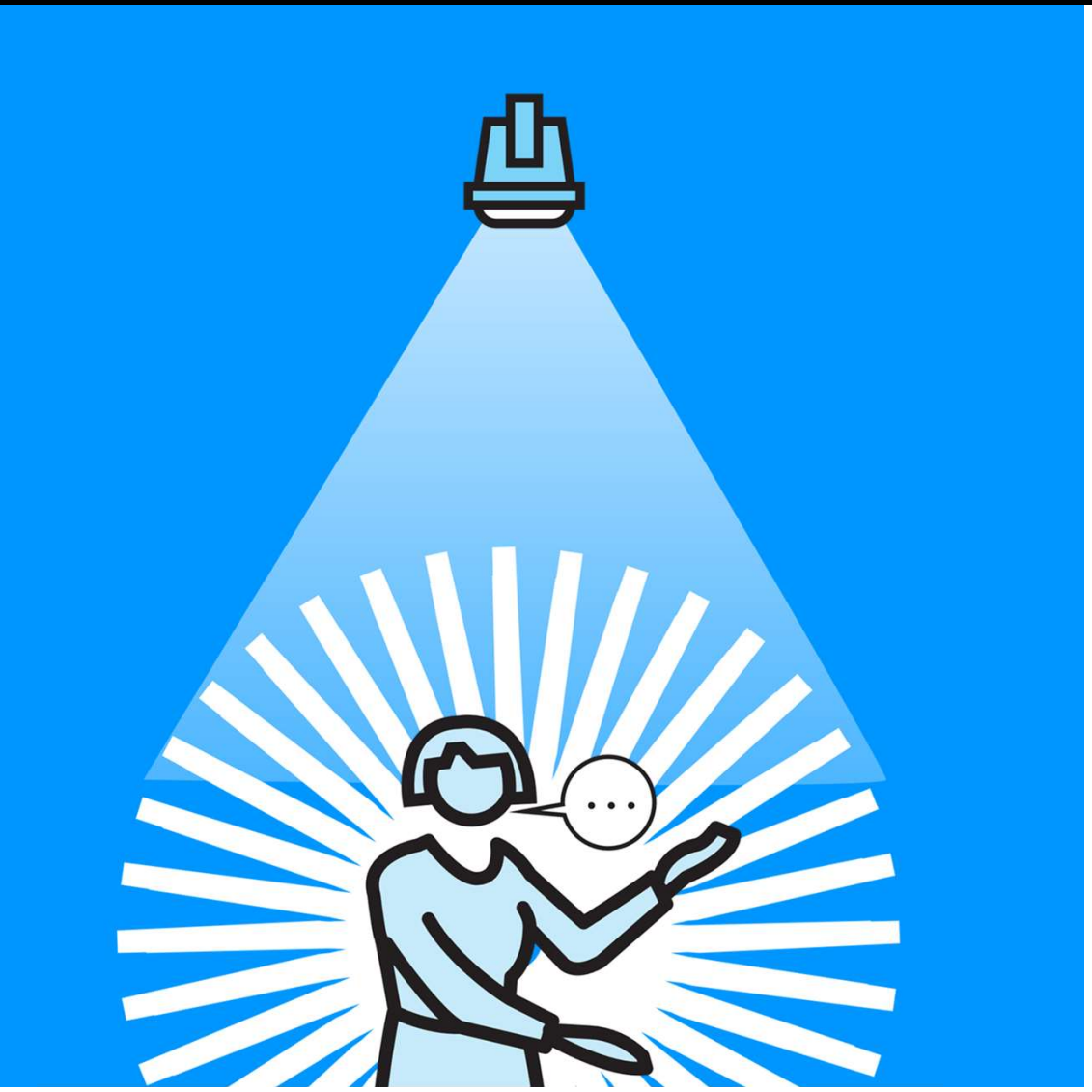
CONSOLIDATE THE LEARNING

TEACHING WALKTHRUS
SERIES
EXPLAINING & MODELLING
A|D|A|P|T

- Teachers often have to demonstrate a skill or procedure that students must learn to perform themselves or an experiment to illustrate some natural phenomenon.
- The goal is to ensure that all students make sense of what they are seeing in order to develop their understanding at the level required.
- Rehearse practical elements, controlling materials and equipment alongside producing a narrative, so extraneous complications don't mask the learning points.

GIVING PRACTICAL DEMONSTRATIONS

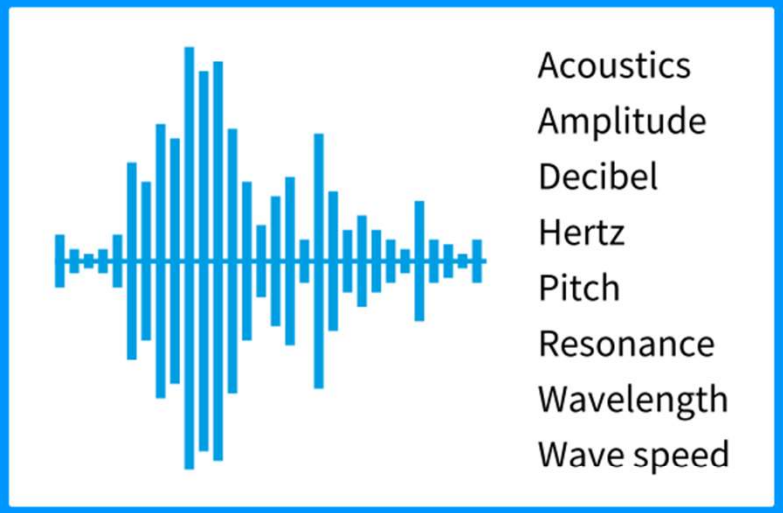
1 2 3 4 5

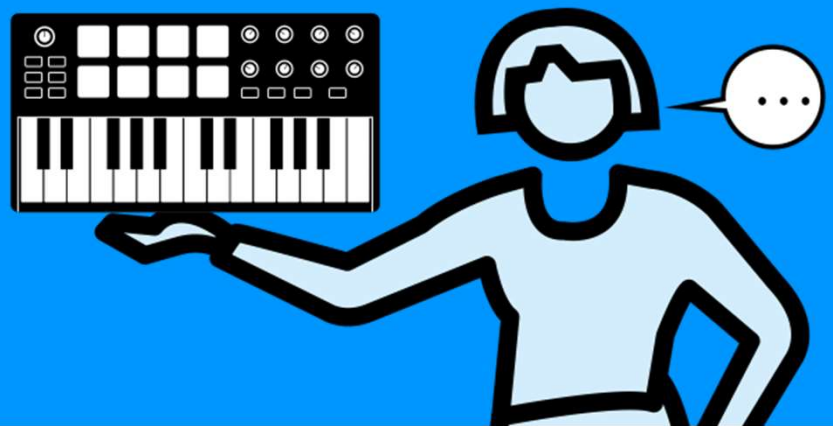


SECURE ATTENTION

- Either use the routines in **Gather Around: Demonstrations and Stories**, initiating the procedure for students to move from their seats into their positions, giving full attention.
- Or position your visualiser so that students can all see the demonstration on the screen as you run through it. This can be useful for effects that can't be seen clearly by a whole class when gathered around.

GIVING PRACTICAL DEMONSTRATIONS

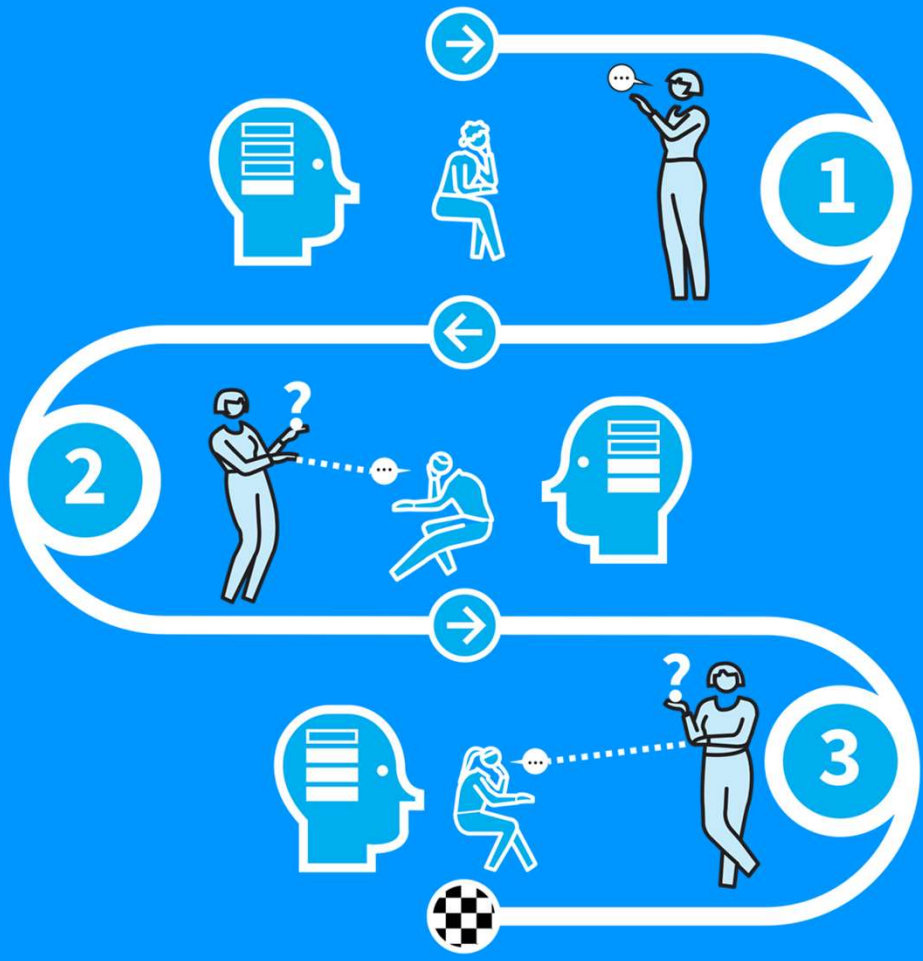




SET THE SCENE

- Taking account of students' prior knowledge, explain the demonstration in the context of the wider curriculum.
- Teach the vocabulary they will need in order to explain what they see using **Deliberate Vocabulary Development**.
- Show diagrams alongside real-world equipment to show how schematic simplifications relate to what is seen.
- Cue up the demonstration, adjusting equipment as needed so students focus on the key effects they should observe.

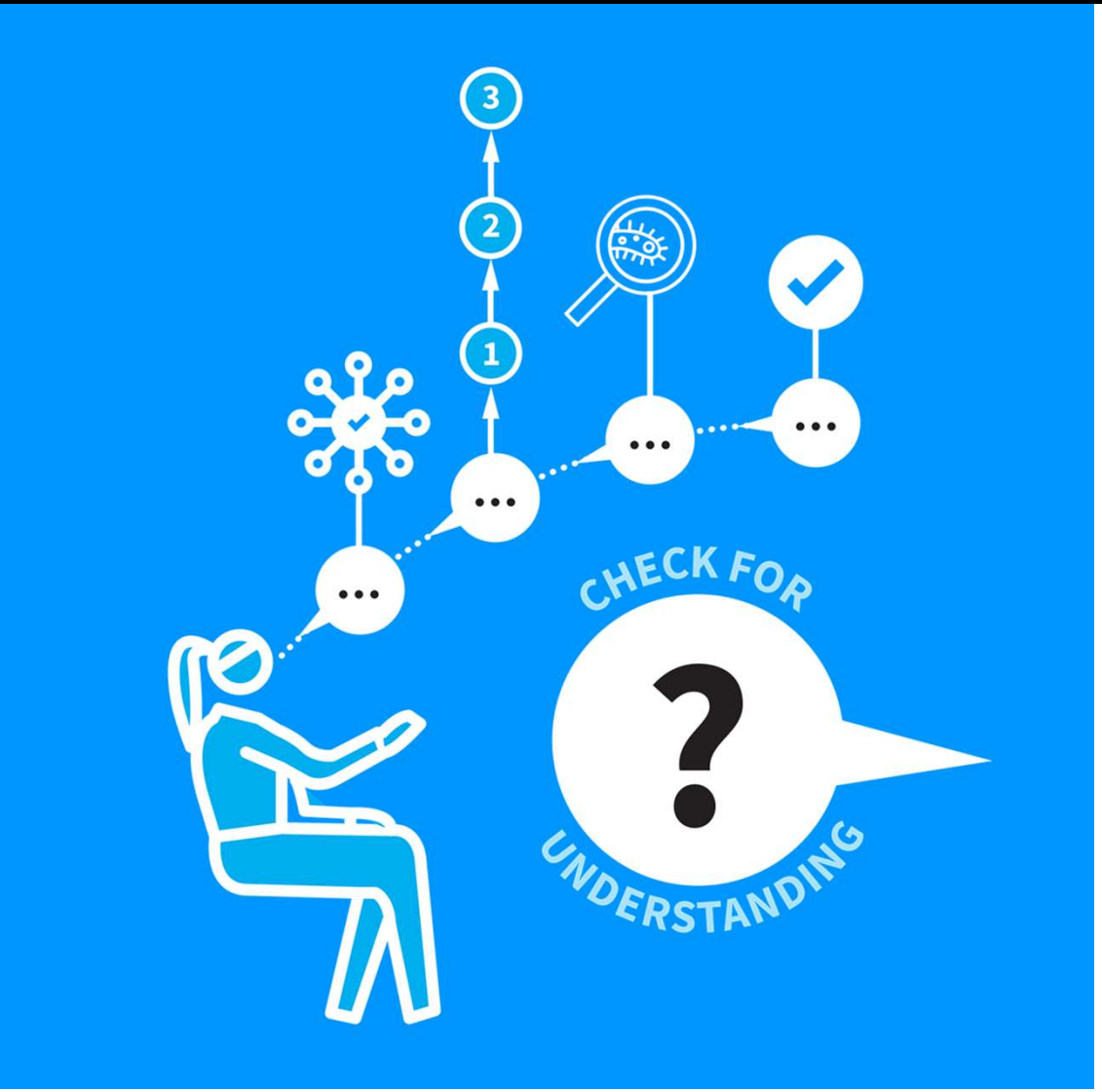
GIVING PRACTICAL DEMONSTRATIONS



DEMONSTRATE IN SMALL STEPS

- Taking account of cognitive load issues, run through the demonstration in small steps, making students think about what is happening, not only any dramatic ***attention grabbing***.
- At key points, **Cold Call** to ask students what they are seeing, ensuring they rehearse using new terminology.
- They should be able to name tools, materials and apparatus. They should rehearse sequences of steps mentally and verbally, in the correct order.

GIVING PRACTICAL DEMONSTRATIONS



CHECK FOR UNDERSTANDING

- Make it an explicit aim that all students can explain what they see, connecting what is seen to concepts and models.
- Ask probing questions so students:
  - Explain what they are observing.
  - Give reasons for steps in a procedure.
  - Relate observation to theory.
  - Predict and explain cause-and-effect relationships between inputs and outputs.
  - Test predictions.

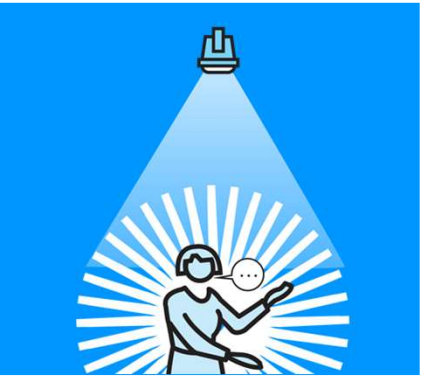
GIVING PRACTICAL DEMONSTRATIONS

CONSOLIDATE THE LEARNING

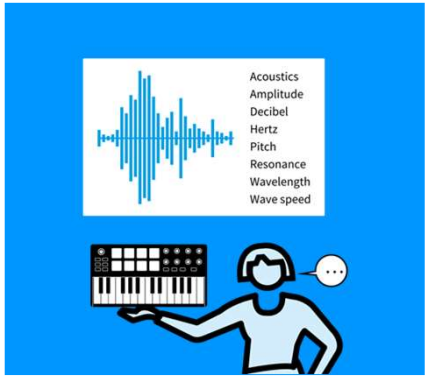
- There is a risk that some students will have been watching without learning much. After a demonstration, set all students a generative task to check.
- This should require them to process the knowledge gained from watching and listening, connecting to prior knowledge and interrogating their understanding.
- Without this, episodic memory of watching a demonstration can easily override the deeper conceptual understanding you may be aiming at.

GIVING PRACTICAL DEMONSTRATIONS

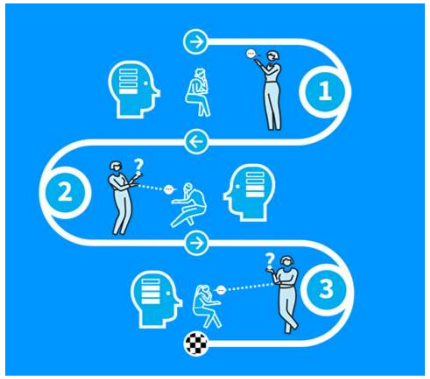
1 2 3 4 5



SECURE ATTENTION

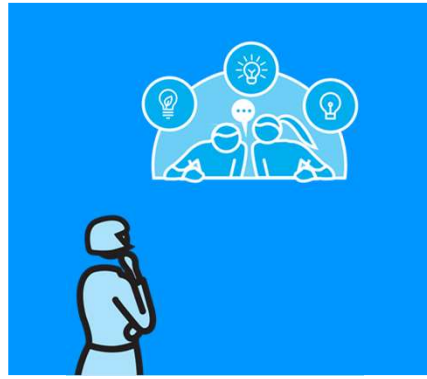


SET THE SCENE



DEMONSTRATE IN SMALL STEPS

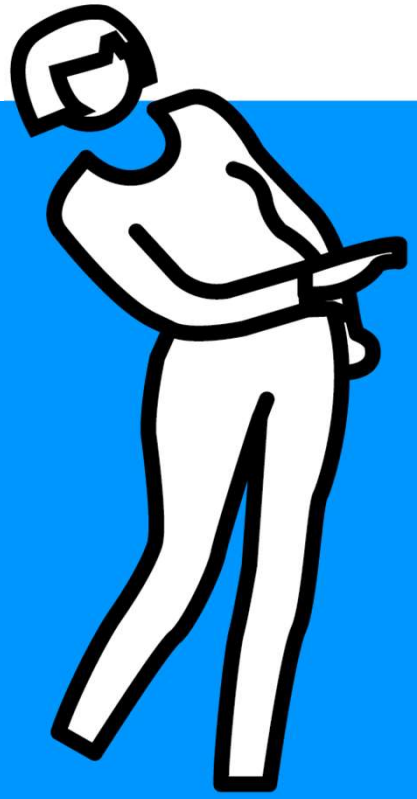
CHECK FOR UNDERSTANDING



CONSOLIDATE THE LEARNING

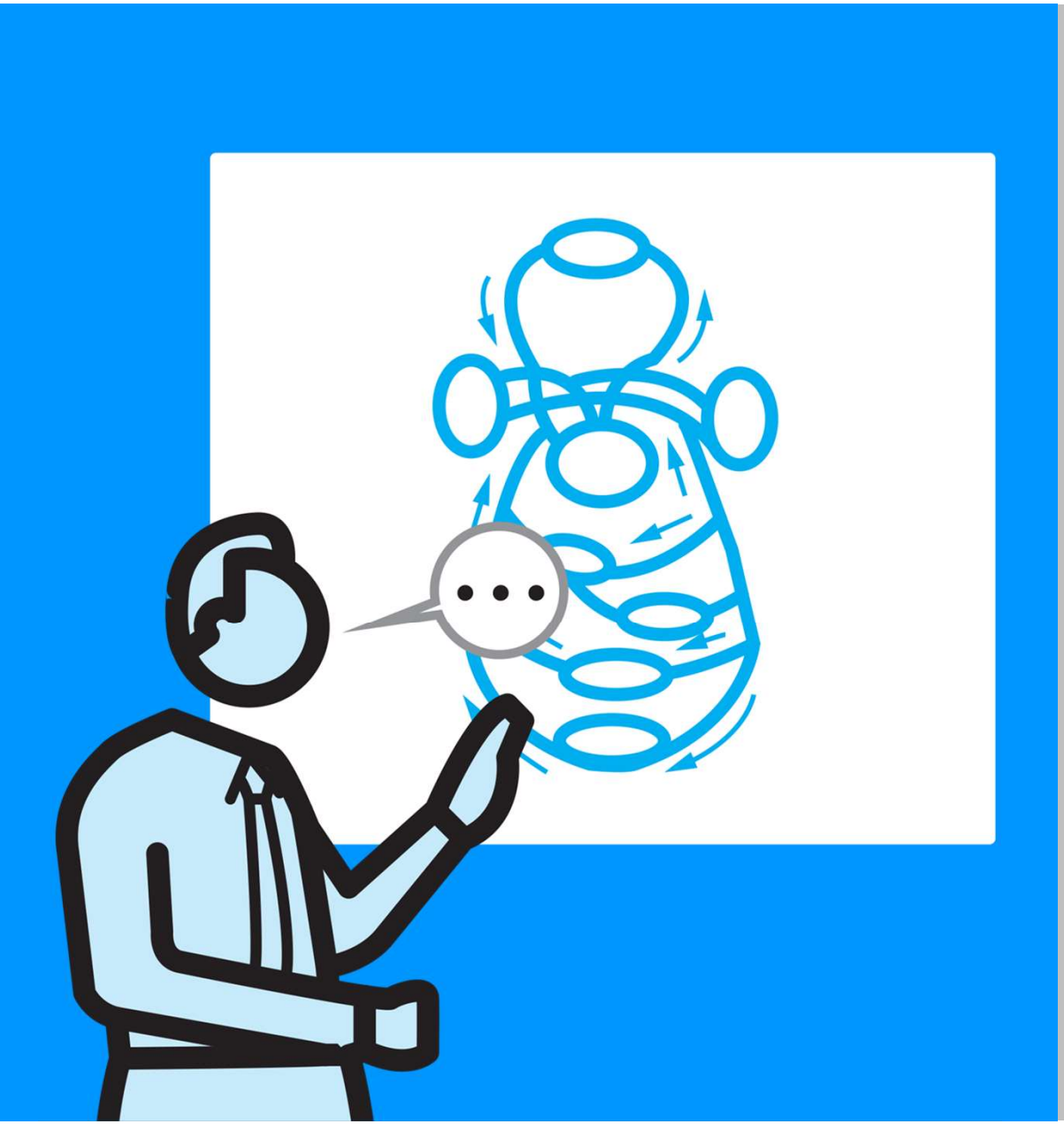
TEACHING WALKTHRUS
SERIES
EXPLAINING & MODELLING
A|D|A|P|T

- Teachers often have to demonstrate a skill or procedure that students must learn to perform themselves or an experiment to illustrate some natural phenomenon.
- The goal is to ensure that all students make sense of what they are seeing in order to develop their understanding at the level required.
- Rehearse practical elements, controlling materials and equipment alongside producing a narrative, so extraneous complications don't mask the learning points.



NEXT UP

DUAL CODING: DIAGRAMS



DUAL CODING; DIAGRAMS

SERIES

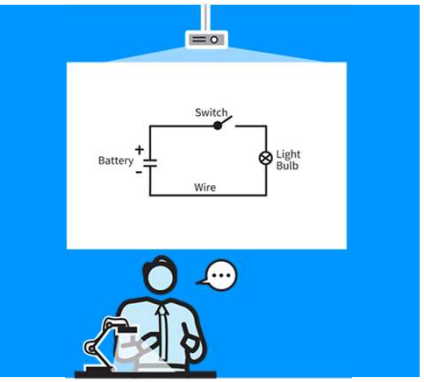
EXPLAINING & MODELLING

1. ESTABLISH A VISUAL OR SYMBOLIC LANGUAGE
2. REPRESENT THE ESSENTIALS; LEAVE THE REST OUT
3. REPRESENT PROCESSES, MOVEMENT AND TIME
4. GENERATE IN REAL TIME, DUAL CODING VERBAL INFORMATION
5. RE-CONNECT REPRESENTATION TO REALITY

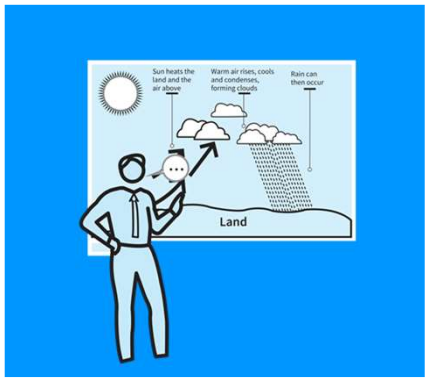
TEACHING WALKTHRUS A|D|A|P|T

DUAL CODING: DIAGRAMS

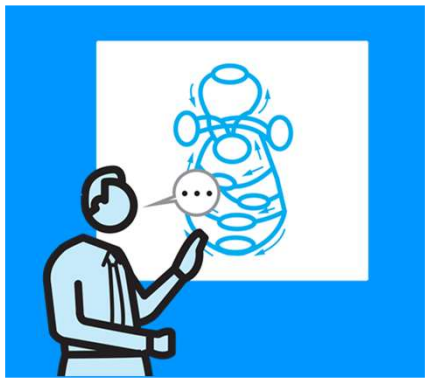
1 2 3 4 5



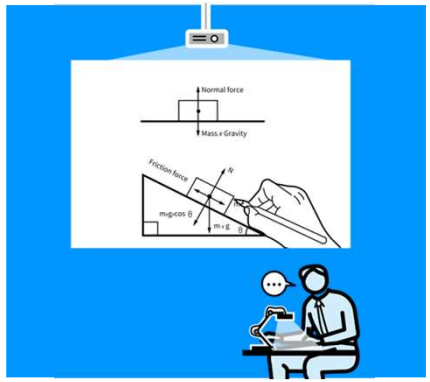
ESTABLISH A VISUAL OR SYMBOLIC LANGUAGE



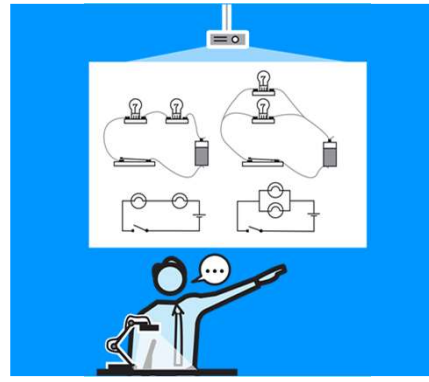
REPRESENT THE ESSENTIALS; LEAVE THE REST OUT



REPRESENT PROCESSES, MOVEMENT AND TIME



GENERATE IN REAL TIME, DUAL CODING VERBAL INFORMATION

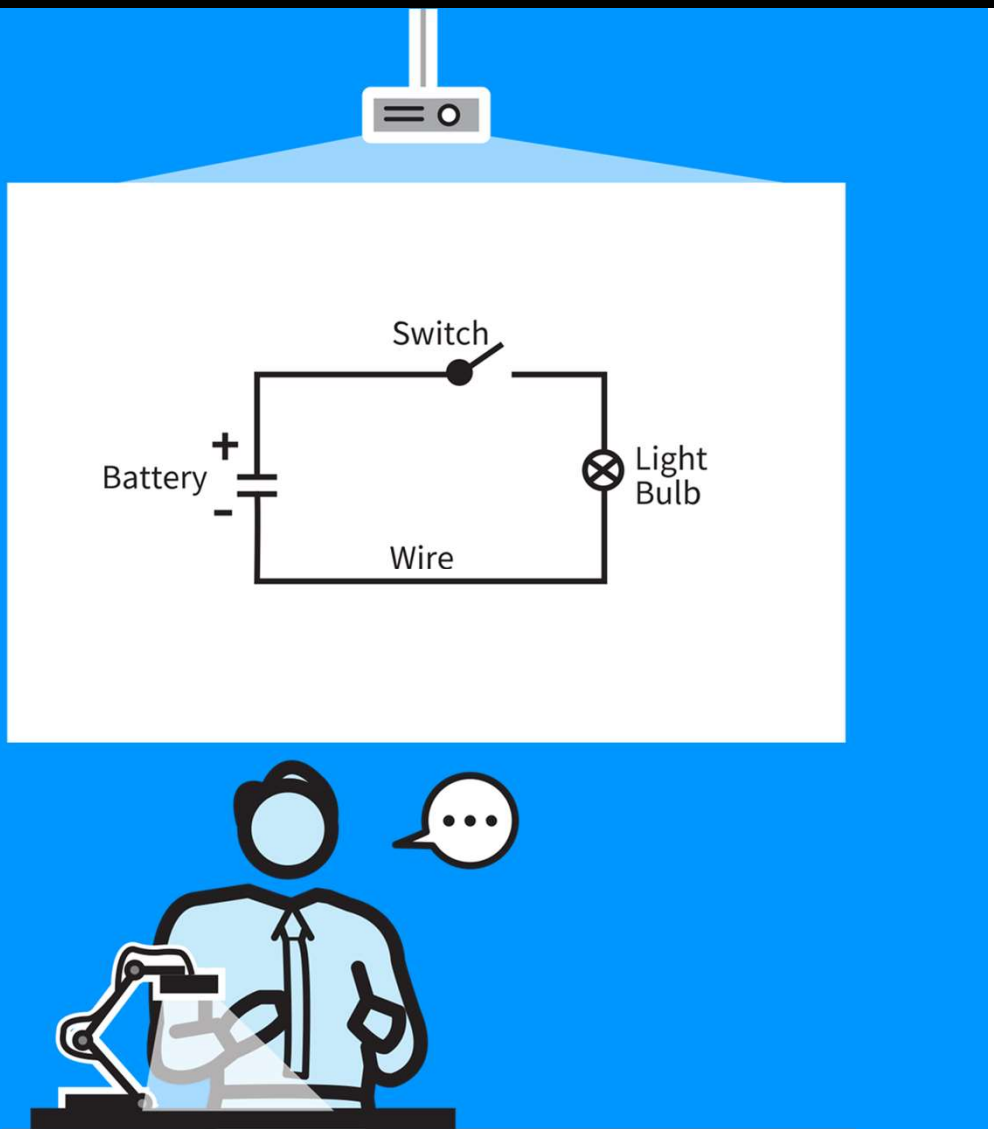


RE-CONNECT REPRESENTATION TO REALITY

TEACHING WALKTHRUS
SERIES
EXPLAINING & MODELLING
A|D|A|P|T

- The core of Paivio's dual coding theory is based on matching visuals with words for the retrieval of simple content. For more complex material, diagrams are needed.
- Converting abstract concepts or intricate processes into visual structures, key ideas are explained in a way psychologists say is more *computationally efficient*.
- Concepts become easier to understand by being visual, explicit and concrete, but teachers must first teach how to read and create diagrams for different purposes.

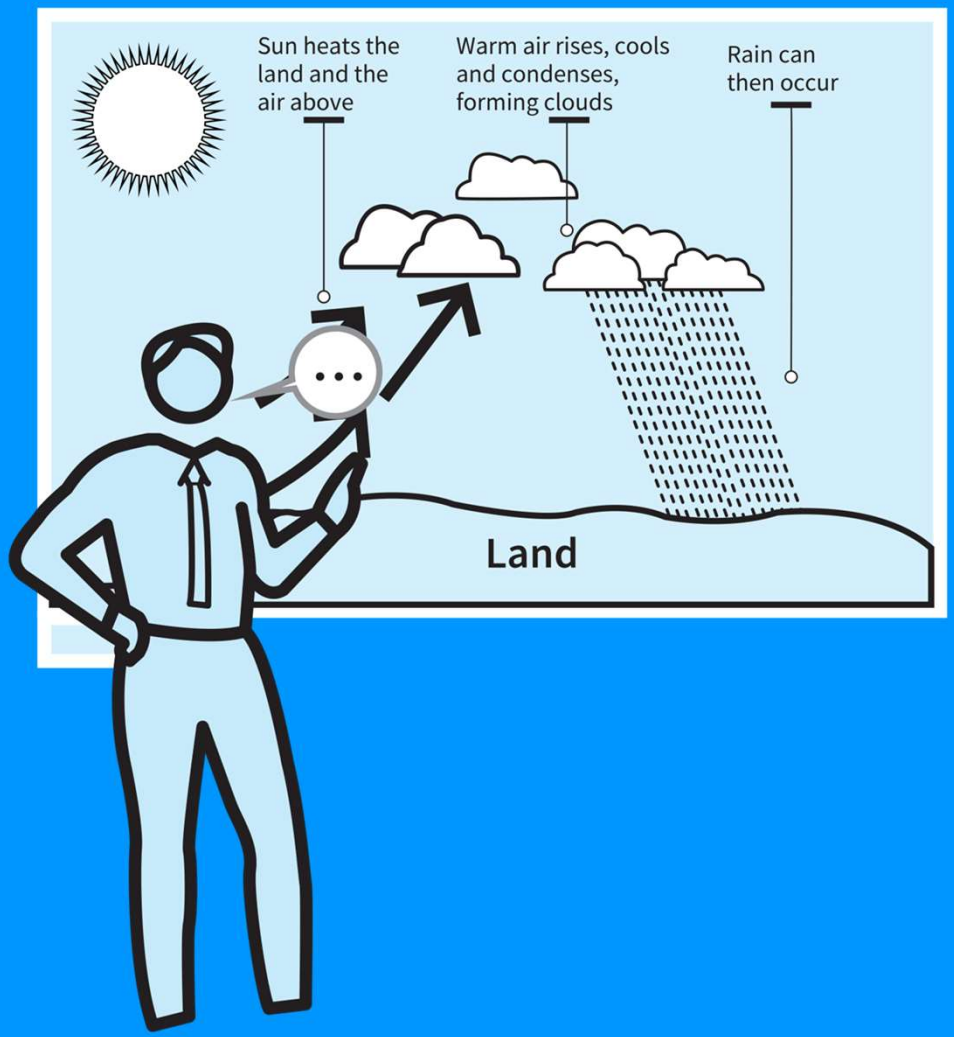
DUAL CODING: DIAGRAMS



ESTABLISH A VISUAL OR SYMBOLIC LANGUAGE

- Before diagrams can be used routinely, teach students the common symbols. Make a table or list to check students' recall and understanding over time.
- Connect symbols to real-life objects and processes, e.g. how:
  - real electrical circuits and circuit diagrams relate.
  - chemical symbols relate to particle diagrams and word equations.
  - arrows represent forces and flows.
  - timelines work.

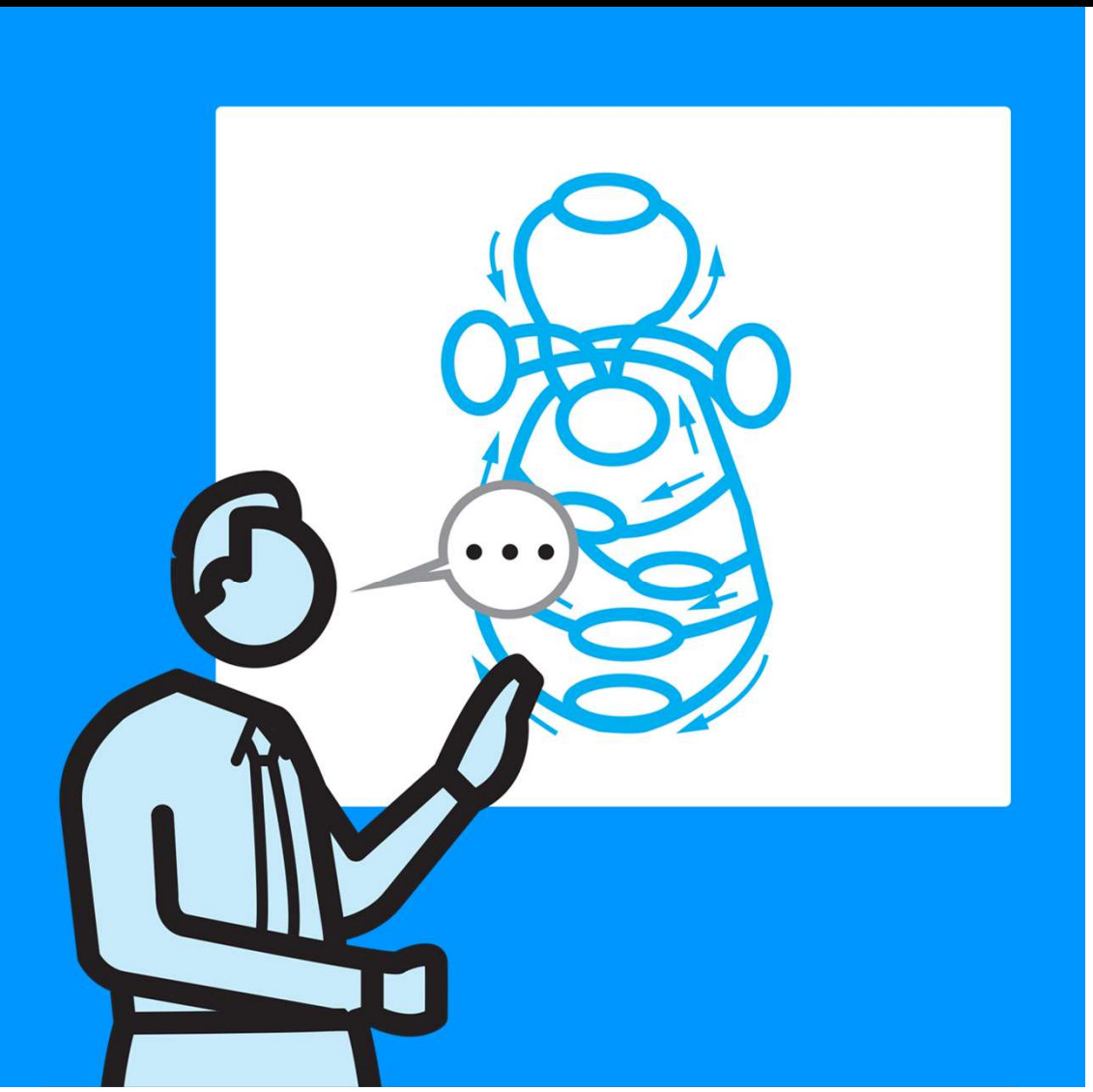
DUAL CODING: DIAGRAMS



REPRESENT THE ESSENTIALS; LEAVE THE REST OUT

- Strip out all material not essential to explain the concepts you are teaching.
- Keep symbols as simple as possible, while ensuring they remain identifiable.
- Use block shapes instead of detailed pictorial representations so diagrams are easy to produce and manipulate.
- Remove the background or any objects not involved in the processes.

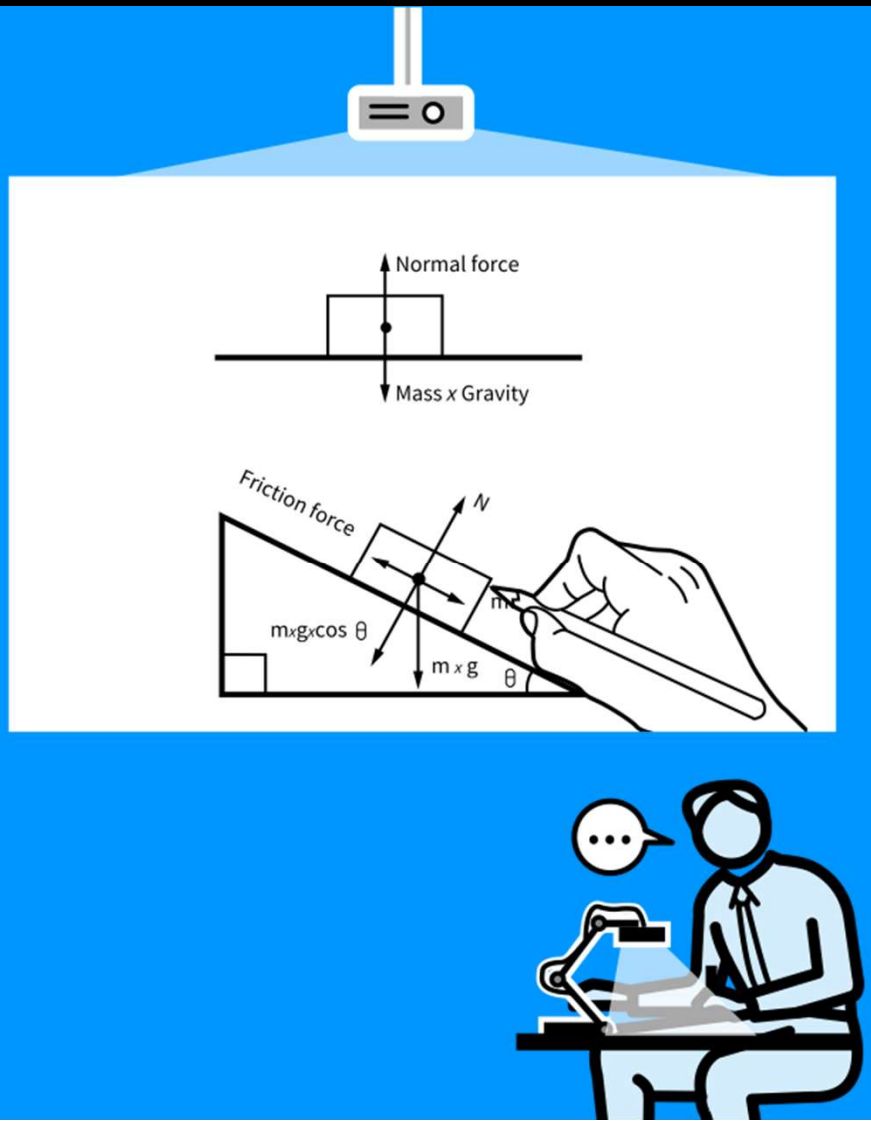
DUAL CODING: DIAGRAMS



REPRESENT PROCESSES, MOVEMENT AND TIME

- Teach students how you represent dynamic processes as well as static situations:
  - Use arrows to show moving from ***before*** to ***after*** in any process.
  - Establish a code for moving in certain directions or rotating.
  - Use flow diagram symbols to show procedures and decision points with different possible outcomes.

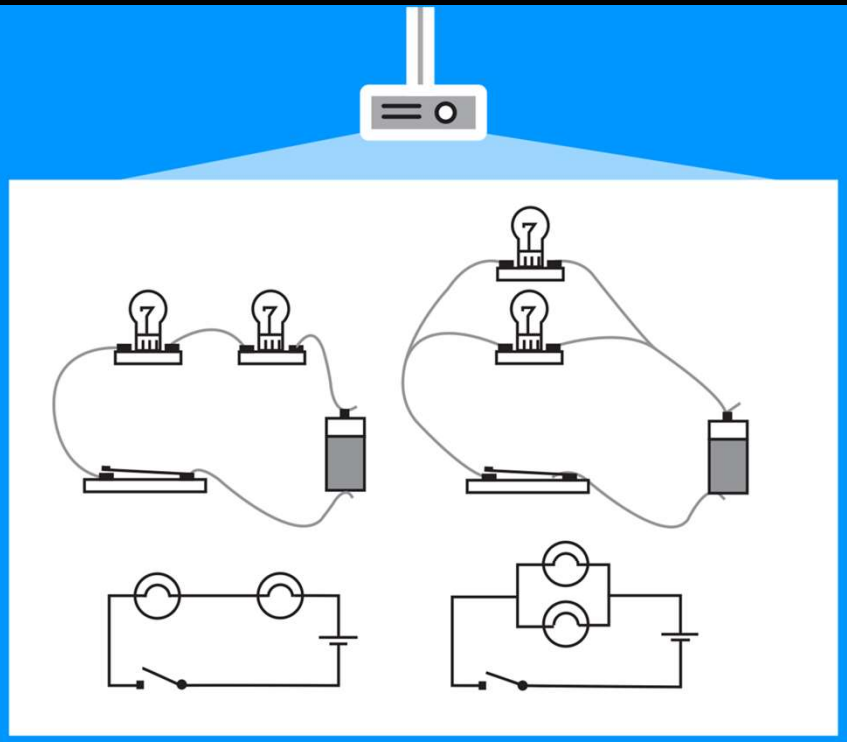
DUAL CODING: DIAGRAMS



GENERATE IN REAL TIME, DUAL CODING VERBAL INFORMATION

- Diagrams can work as static representations, but it is powerful to create them in real time supporting a verbal explanation.
- Using a visualiser or whiteboard, capture the steps of your explanation in symbolic form.
- This helps students see processes develop, visualising changes as they occur, exploring causal links, reinforcing the verbal narrative.

DUAL CODING: DIAGRAMS

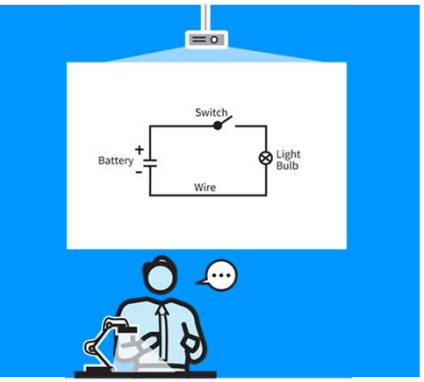


RE-CONNECT REPRESENTATION TO REALITY

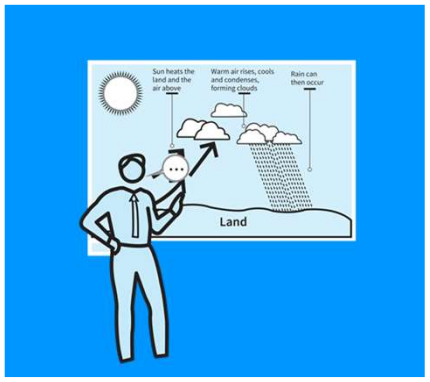
- Ensure students can translate diagrams back into real situations. This can include asking them to:
  - set up apparatus based on a diagram.
  - provide a narrative of a change process following steps in a diagram.
  - solve a problem that is presented in the form of a diagram.
  - explain a phenomenon verbally using a diagram as the only reference.

DUAL CODING: DIAGRAMS

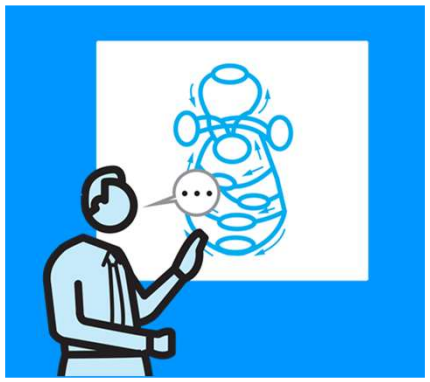
1 2 3 4 5



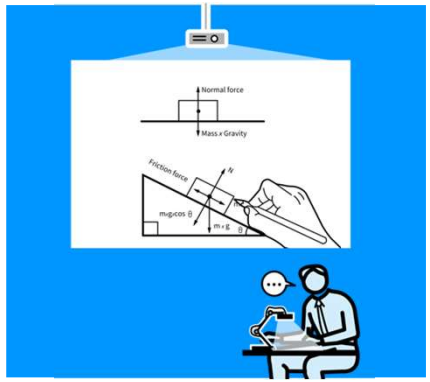
ESTABLISH A VISUAL OR SYMBOLIC LANGUAGE



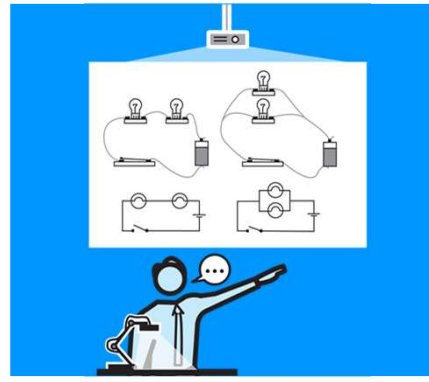
REPRESENT THE ESSENTIALS; LEAVE THE REST OUT



REPRESENT PROCESSES, MOVEMENT AND TIME



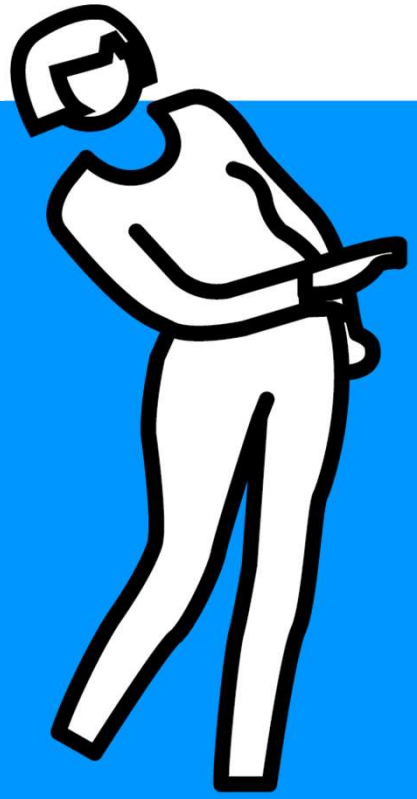
GENERATE IN REAL TIME, DUAL CODING VERBAL INFORMATION



RE-CONNECT REPRESENTATION TO REALITY

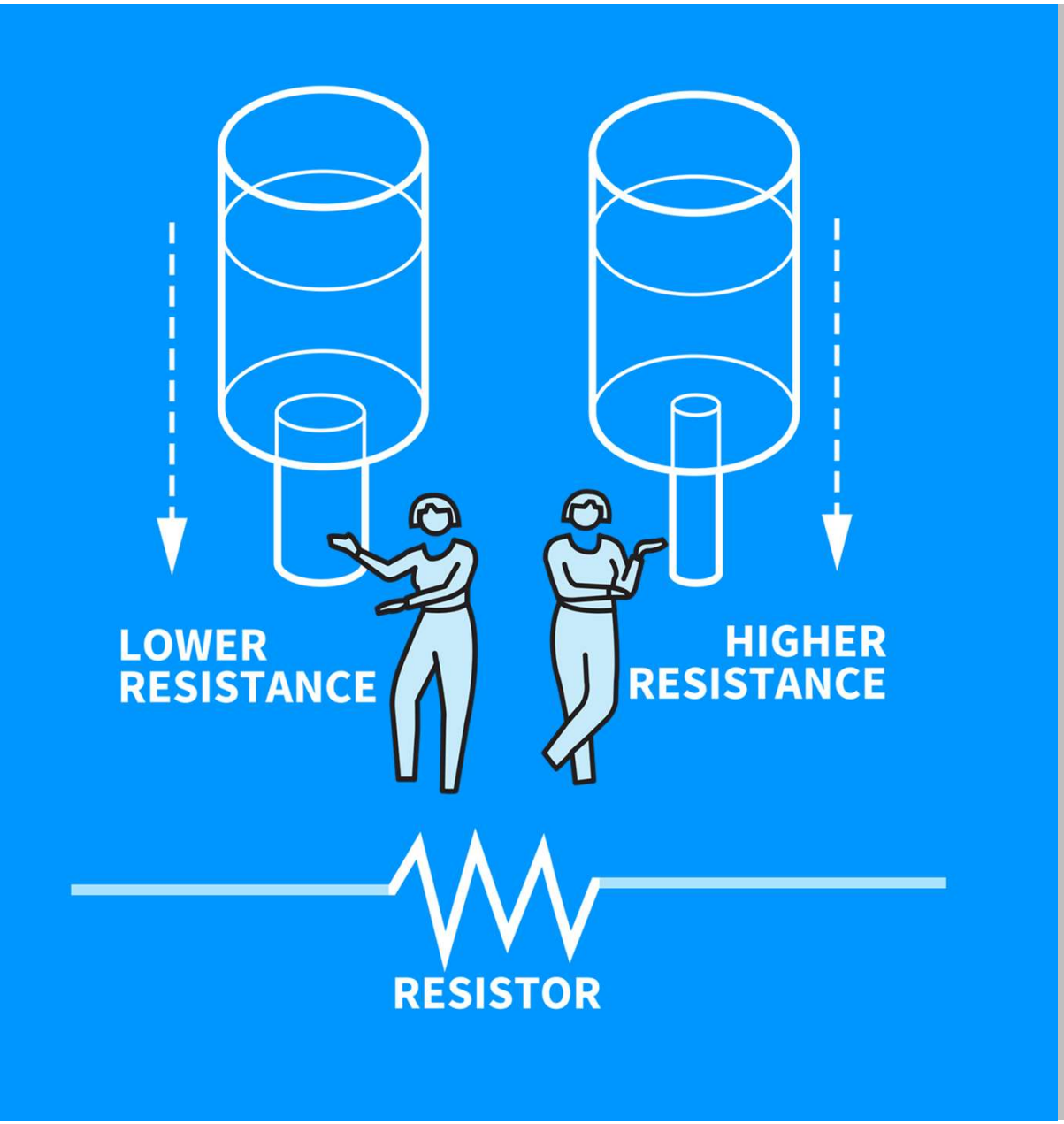
TEACHING WALKTHRUS
SERIES
EXPLAINING & MODELLING
A|D|A|P|T

- The core of Paivio's dual coding theory is based on matching visuals with words for the retrieval of simple content. For more complex material, diagrams are needed.
- Converting abstract concepts or intricate processes into visual structures, key ideas are explained in a way psychologists say is more *computationally efficient*.
- Concepts become easier to understand by being visual, explicit and concrete, but teachers must first teach how to read and create diagrams for different purposes.



NEXT UP

ANALOGIES



ANALOGIES

SERIES

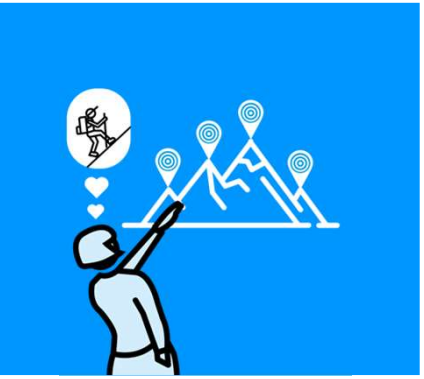
EXPLAINING & MODELLING

1. CONSTRUCT ANALOGIES BASED ON FAMILIAR CONTEXTS
2. ESTABLISH THE PARALLELS EXPLICITLY
3. TEST THE ANALOGY IN DIFFERENT SCENARIOS
4. ESTABLISH THE LIMITS EXPLICITLY
5. CHECK FOR UNDERSTANDING

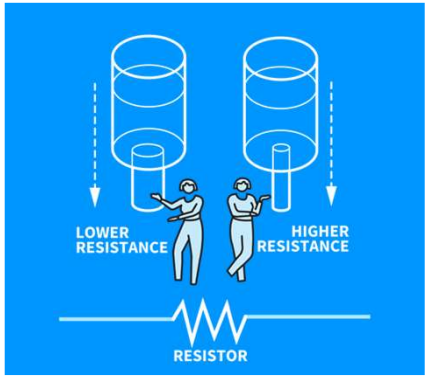
TEACHING WALKTHRUS A|D|A|P|T

ANALOGIES

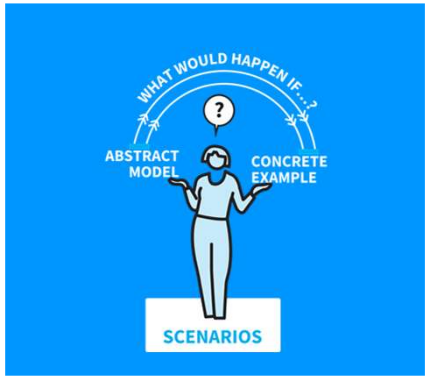
1 2 3 4 5



CONSTRUCT ANALOGIES BASED ON FAMILIAR CONTEXTS

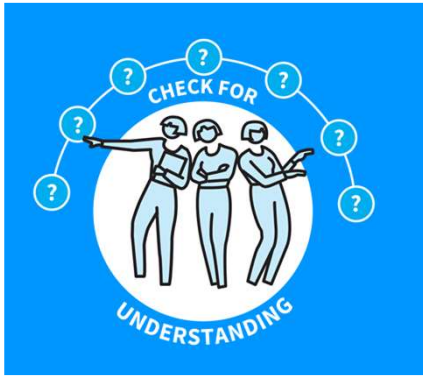


ESTABLISH THE PARALLELS EXPLICITLY



TEST THE ANALOGY IN DIFFERENT SCENARIOS

ESTABLISH THE LIMITS EXPLICITLY

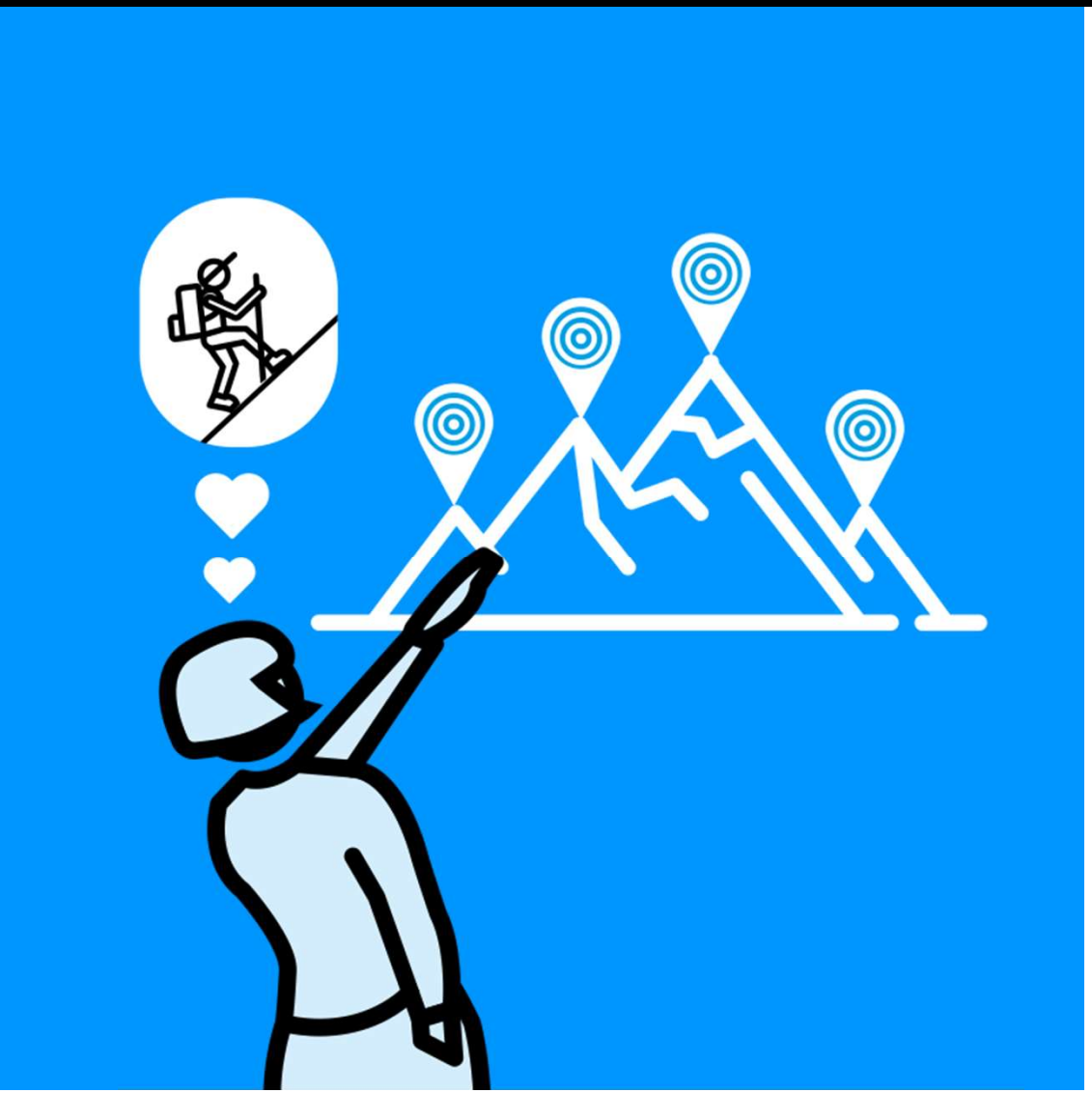


CHECK FOR UNDERSTANDING

TEACHING WALKTHRUS
SERIES
EXPLAINING & MODELLING
A|D|A|P|T

- In the schema-building model of learning, we only really learn new material if it makes sense in terms of things we already know. Knowledge builds on knowledge.
- New abstract conceptual ideas can sometimes be best understood by constructing an analogy, referencing the behaviours of something familiar and more concrete.
- If we understand how a concrete example behaves, it helps make sense of the more abstract or less familiar idea.

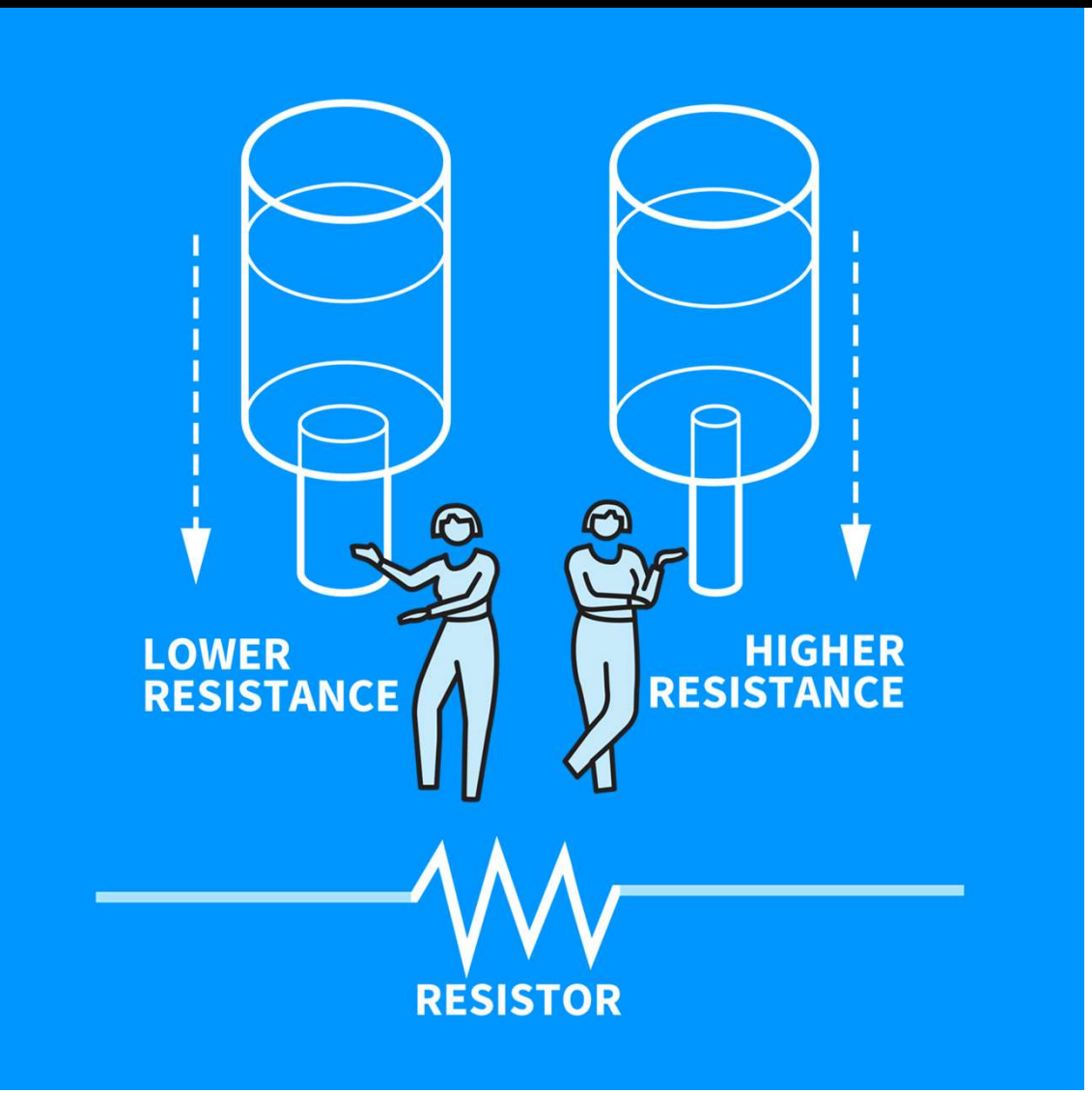
ANALOGIES



CONSTRUCT ANALOGIES BASED ON FAMILIAR CONTEXTS

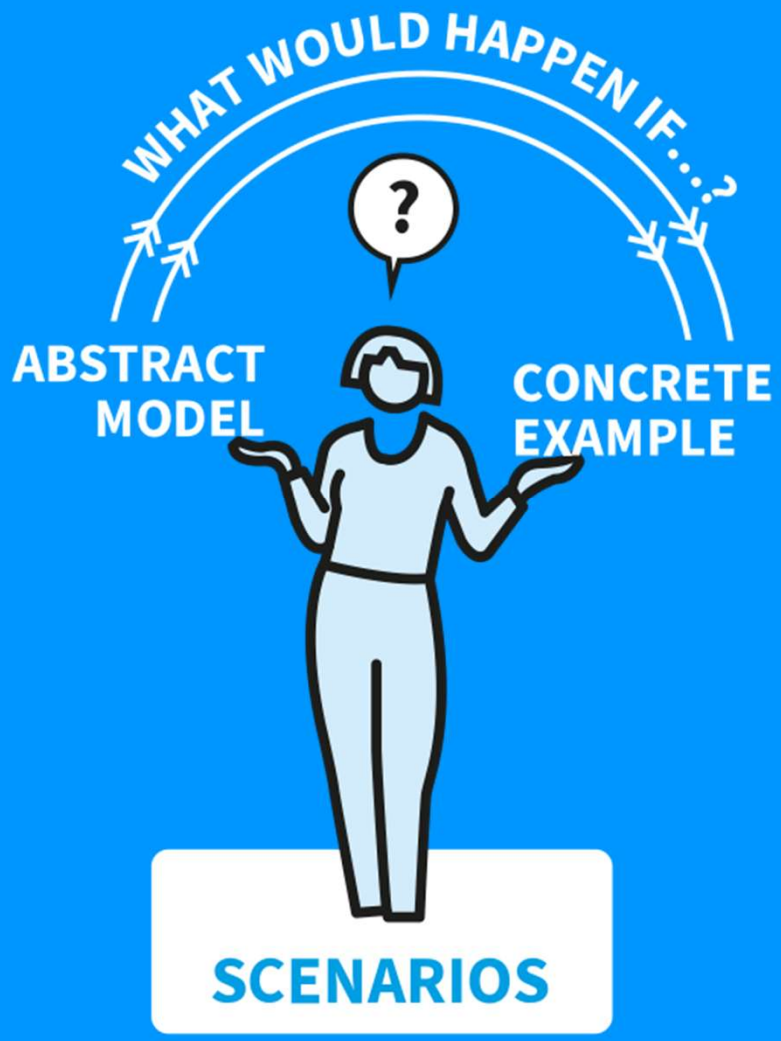
- Established analogies within subjects are normally successful because they connect to familiar contexts:
  - With electricity, an analogy builds on the properties of water flowing in a system of pipes.
  - Mountain climbing by taking small steps relates to numerous goal-setting scenarios.
  - Sporting analogies can help explain competitive attack/defence situations like battles.

ANALOGIES



ESTABLISH THE PARALLELS EXPLICITLY

- Make very explicit links that explain the different features of the analogy.
  - With electricity, rate of water flow is analogous to electrical current. Thinner pipes make it more difficult for the water to flow, analogous to higher electrical resistance.
  - A bank overdraft is analogous to negative numbers. Borrowing more makes a total more negative.
- **Check for Understanding** carefully.



TEST THE ANALOGY IN DIFFERENT SCENARIOS

- With parallel elements established, ask how the concrete examples behave:
  a. *What happens to the rate of water flow if we make the pipes wider?*
  b. *What happens to my bank balance if I pay back some debt?*
- Link this to the way the analogous abstract example behaves*:*
  a. *The electrical current increases if we reduce the resistance.*
  b. *I move in the positive direction if I take away a negative number.*

ESTABLISH THE LIMITS EXPLICITLY

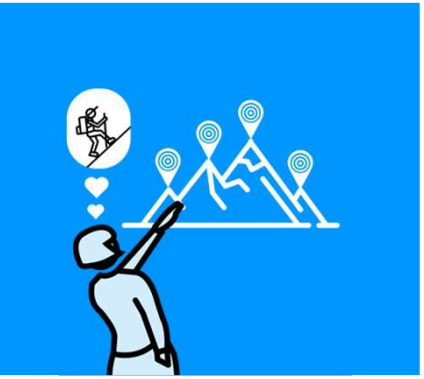
- Don’t stretch an analogy too far:
  - If talking about ***taking away cold*** with a thermometer analogy for negative numbers, the physical reality of this becomes dubious.
  - Opposing armies and football teams are only similar to a degree!
- Discuss the limits and ask questions:
  - In the water flow electricity analogy, can there be drops of electricity? What is analogous to voltage?

CHECK FOR UNDERSTANDING

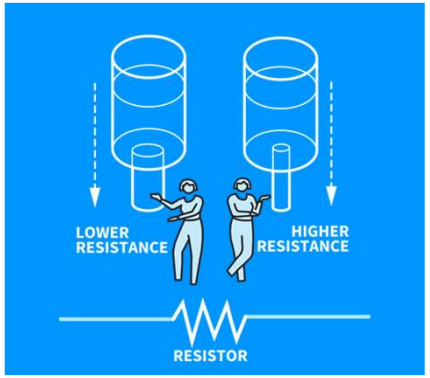
- Analogies are useful if they help to bridge from concrete prior knowledge to new abstract ideas. Make sure that this has happened through forms of questioning and formative assessment.
- **Check for Understanding** to sample the class and establish whether the analogy is helping.
- Be prepared to add detail to the analogy or to try a different one until the abstract concepts start to make sense.

ANALOGIES

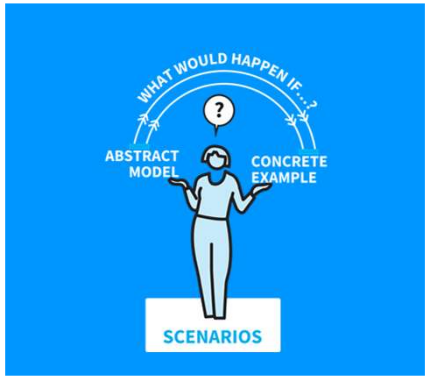
1 2 3 4 5



CONSTRUCT ANALOGIES BASED ON FAMILIAR CONTEXTS

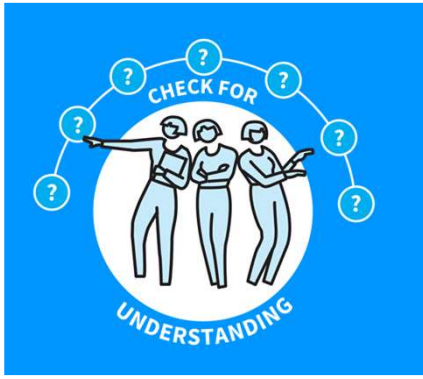


ESTABLISH THE PARALLELS EXPLICITLY



TEST THE ANALOGY IN DIFFERENT SCENARIOS

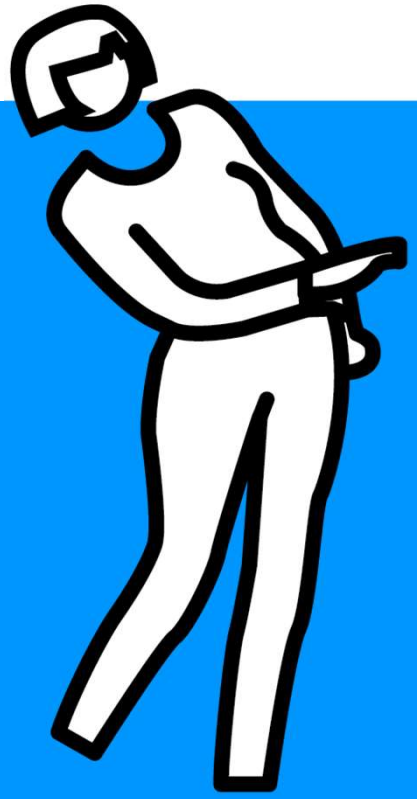
ESTABLISH THE LIMITS EXPLICITLY



CHECK FOR UNDERSTANDING

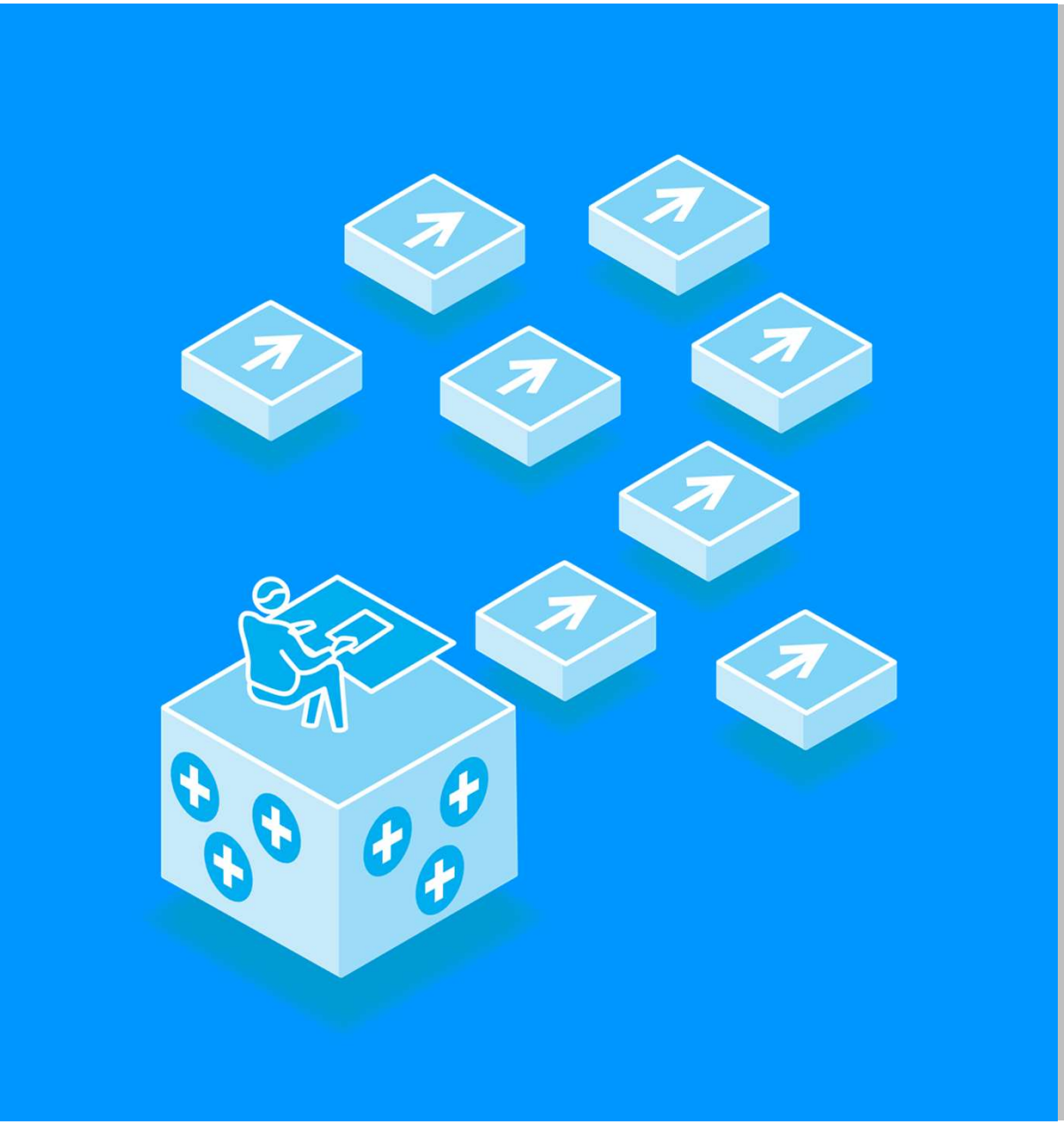
TEACHING WALKTHRUS
SERIES
EXPLAINING & MODELLING
A|D|A|P|T

- In the schema-building model of learning, we only really learn new material if it makes sense in terms of things we already know. Knowledge builds on knowledge.
- New abstract conceptual ideas can sometimes be best understood by constructing an analogy, referencing the behaviours of something familiar and more concrete.
- If we understand how a concrete example behaves, it helps make sense of the more abstract or less familiar idea.



NEXT UP

SEND: ADDRESSING COGNITIVE DIFFICULTIES



SEND: ADDRESSING COGNITIVE DIFFICULTIES

SERIES

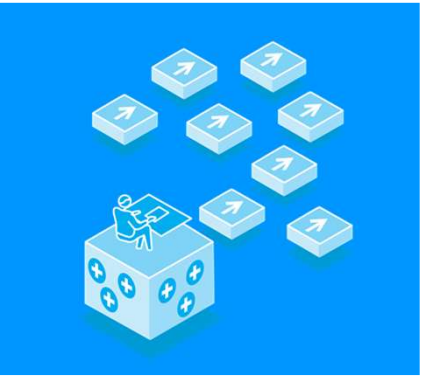
EXPLAINING & MODELLING

1. FIND AND BUILD ON SECURE GROUND
2. IDENTIFY PRECISE BARRIERS
3. KEEP CONCEPTS AS CONCRETE AS POSSIBLE
4. REINFORCE LANGUAGE ELEMENTS
5. EMPHASISE GUIDED PRACTICE

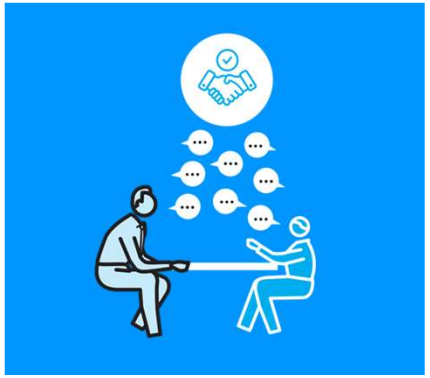
TEACHING WALKTHRUS A|D|A|P|T

SEND: ADDRESSING COGNITIVE DIFFICULTIES

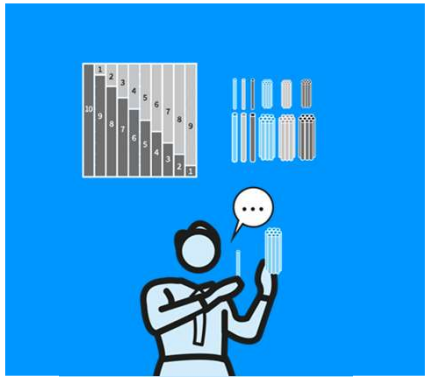
1 2 3 4 5



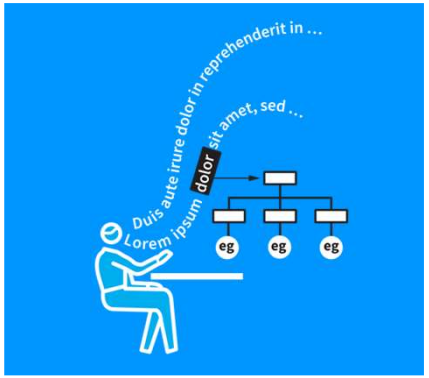
FIND AND BUILD ON SECURE GROUND



IDENTIFY PRECISE BARRIERS



KEEP CONCEPTS AS CONCRETE AS POSSIBLE



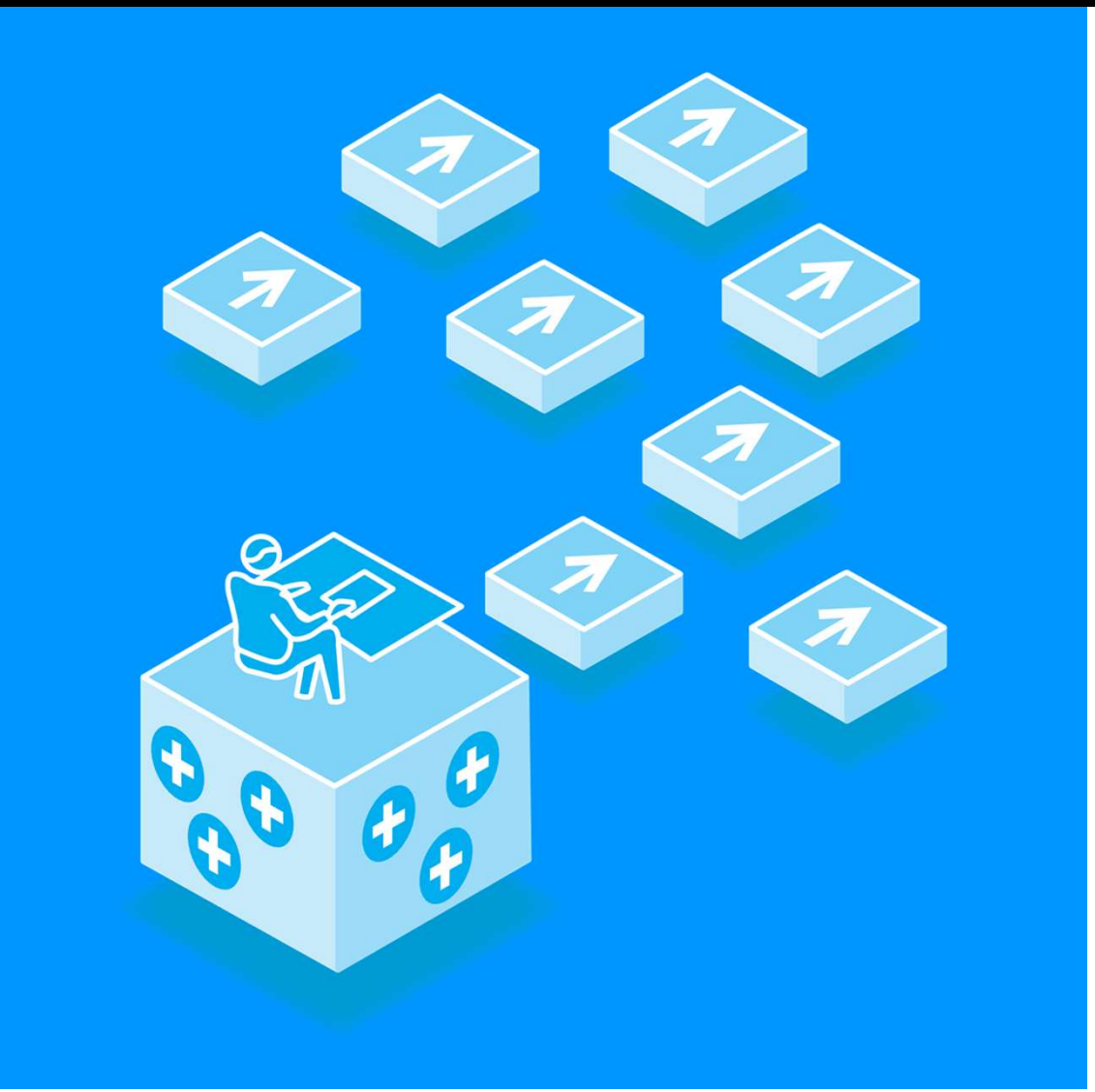
REINFORCE LANGUAGE ELEMENTS

EMPHASISE GUIDED PRACTICE

TEACHING WALKTHRUS
SERIES
EXPLAINING & MODELLING
A|D|A|P|T

- Drill down beyond broad special needs labels to establish and understand what any student's areas of need are.
- Are they moderate or severe cognitive impairments or communication difficulties or do they fall into the category of specific learning difficulties?
- Even where a known condition such as dyslexia, dyscalculia or dyspraxia is identified, each student will have their own needs within those umbrella definitions.

SEND: ADDRESSING COGNITIVE DIFFICULTIES



FIND AND BUILD ON SECURE GROUND

- However difficult a student finds the learning, they have a baseline of things they can do successfully.
- Find out what that baseline is and use it as a platform for building from:
  - aspects of literacy and language
  - communication skills
  - personal confidence
  - past knowledge and experience
  - physical skills
  - mental or spatial models

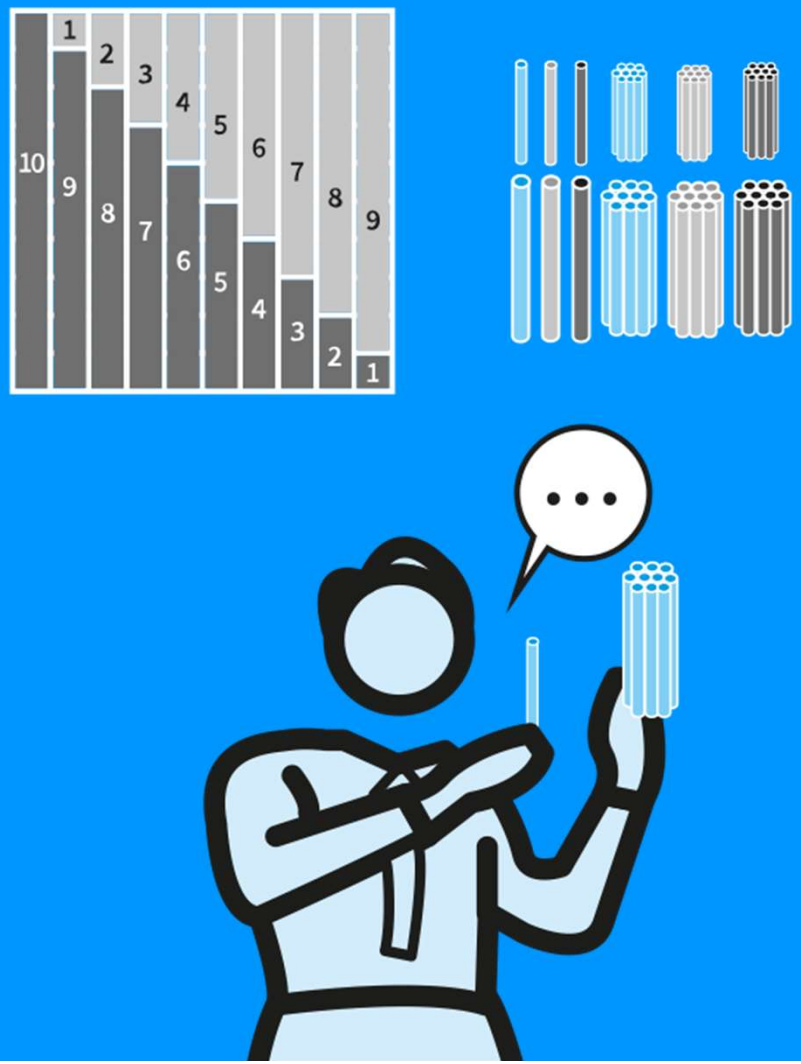
SEND: ADDRESSING COGNITIVE DIFFICULTIES

IDENTIFY PRECISE BARRIERS

- Through the course of teaching or via forms of assessment, find out exactly where students struggle.
- The more precise you are, the more you can design appropriate scaffolds, practice tasks or interventions. Balance support with high expectations.
- Sometimes students can tell you where they start to struggle; dialogue with students, support teachers and parents is also very important.

SEND: ADDRESSING COGNITIVE DIFFICULTIES

1 2 3 4 5

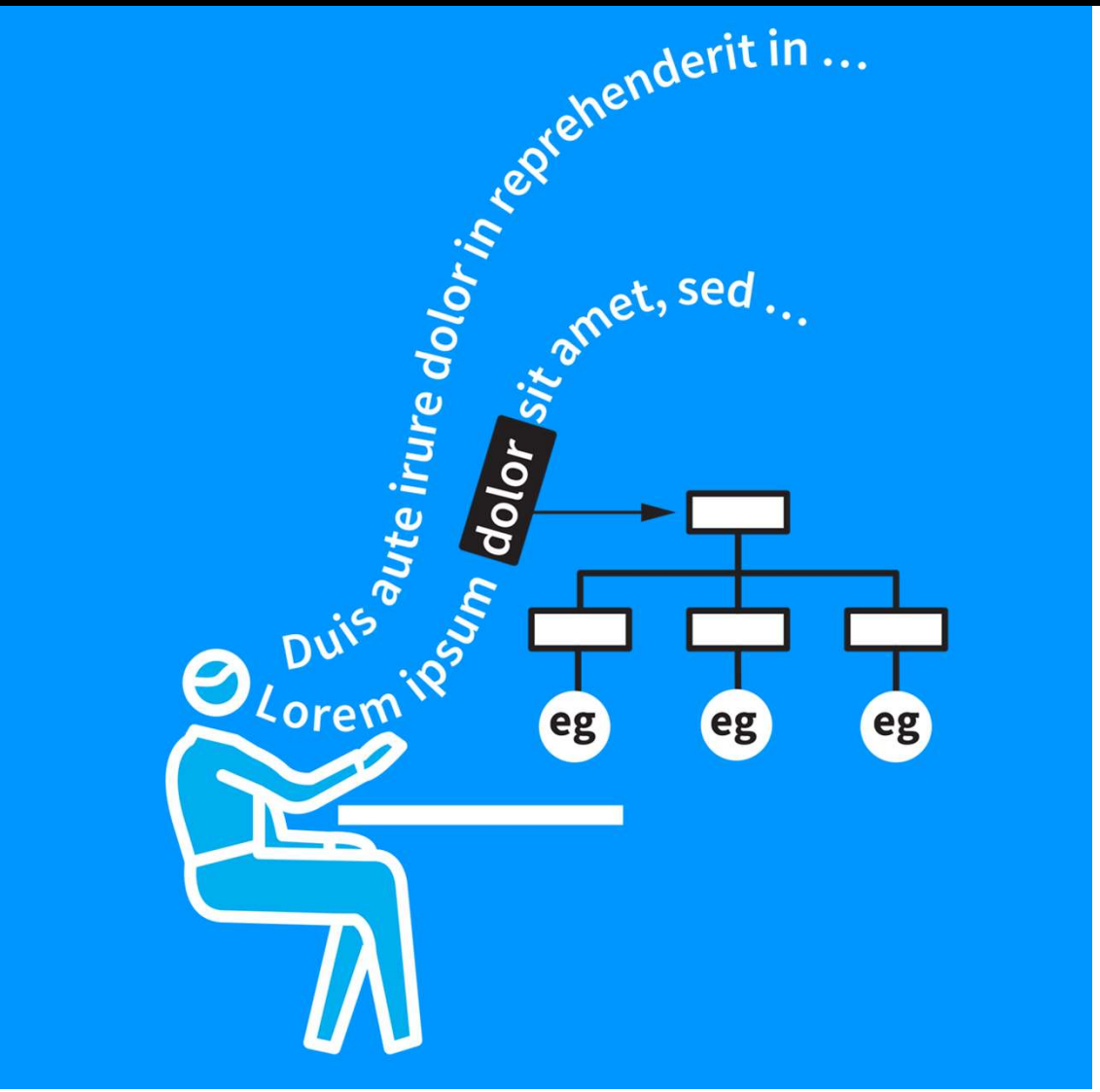


KEEP CONCEPTS AS CONCRETE AS POSSIBLE

- Cognitive difficulties are often most evident when learning moves from concrete to abstract.
- e.g. in maths, build solid understanding of number and place value using concrete resources – rods, counters, shapes, patterns of objects – making sense of operations in a concrete realm.
- Meanings of new words or abstract models for scientific phenomena need to relate to the world students can understand.

SEND: ADDRESSING COGNITIVE DIFFICULTIES

1 2 3 4 5



REINFORCE LANGUAGE ELEMENTS

- Give students plenty of practice with key vocabulary both in terms of meaning and fluency.
- Connect words to objects or phenomena very explicitly with fluency-building activities so they use language with confidence in the appropriate contexts.
- SEND students may lack confidence, making teachers anxious about putting them under pressure – but this should not lead to them being engaged less or getting less practice than they need.

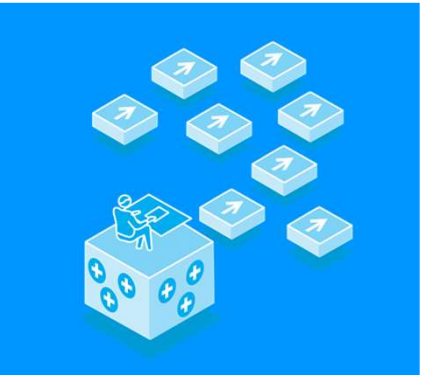
SEND: ADDRESSING COGNITIVE DIFFICULTIES

EMPHASISE GUIDED PRACTICE

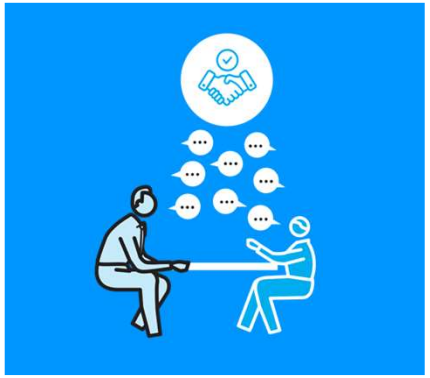
- Follow ideas in **Guided Practice** extensively. Build confidence by supporting students to succeed in a task, prompting and scaffolding as much as is needed to secure a positive successful outcome.
- Then, repeat this with less guidance and support.
- Avoid the scenario of stress-inducing floundering; withdraw support steadily as students' confidence and fluency improves.

SEND: ADDRESSING COGNITIVE DIFFICULTIES

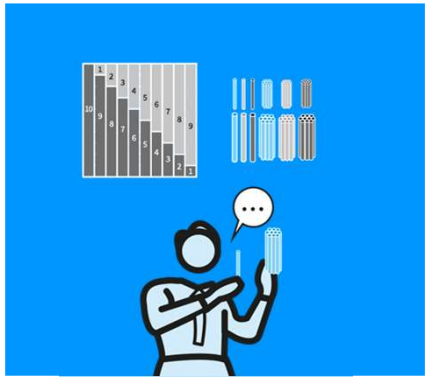
1 2 3 4 5



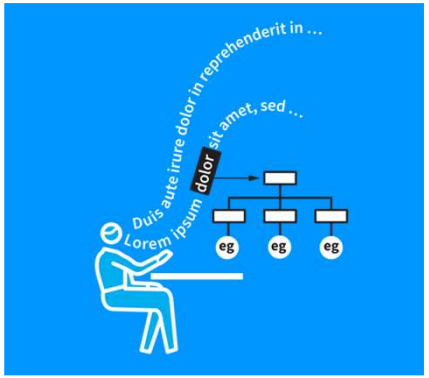
FIND AND BUILD ON SECURE GROUND



IDENTIFY PRECISE BARRIERS



KEEP CONCEPTS AS CONCRETE AS POSSIBLE

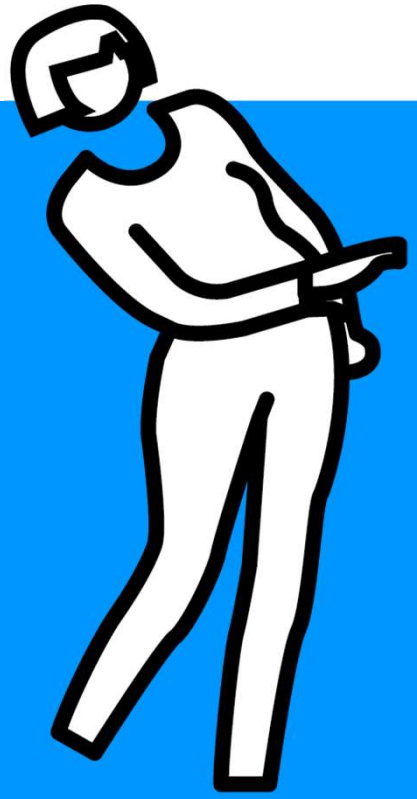


REINFORCE LANGUAGE ELEMENTS

EMPHASISE GUIDED PRACTICE

TEACHING WALKTHRUS
SERIES
EXPLAINING & MODELLING
A|D|A|P|T

- Drill down beyond broad special needs labels to establish and understand what any student's areas of need are.
- Are they moderate or severe cognitive impairments or communication difficulties or do they fall into the category of specific learning difficulties?
- Even where a known condition such as dyslexia, dyscalculia or dyspraxia is identified, each student will have their own needs within those umbrella definitions.



NEXT UP

COMPARE, CONTRAST & CATEGORISE

COMPARE, CONTRAST & CATEGORISE

SERIES

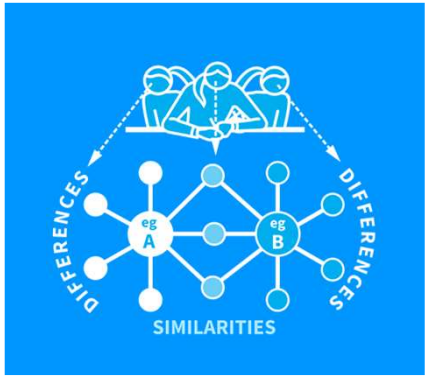
EXPLAINING & MODELLING

1. DELIBERATE SCHEMA-BUILDING
2. COMPARE: LOOK FOR SIMILARITIES AND DIFFERENCES
3. CONTRAST: EMPHASISE DIFFERENCES, ALTERNATIVES, CONFLICTS
4. CATEGORISE: DEFINE, SELECT AND ORGANISE
5. APPLY 3Cs IN NEW CONTEXTS

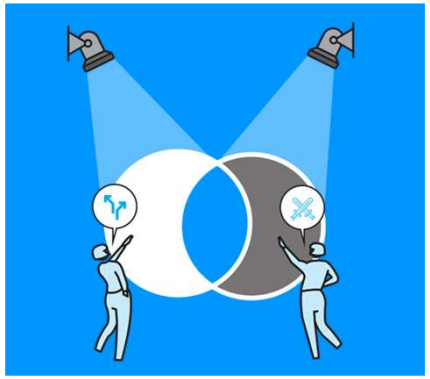
TEACHING WALKTHRUS A|D|A|P|T

COMPARE, CONTRAST & CATEGORISE

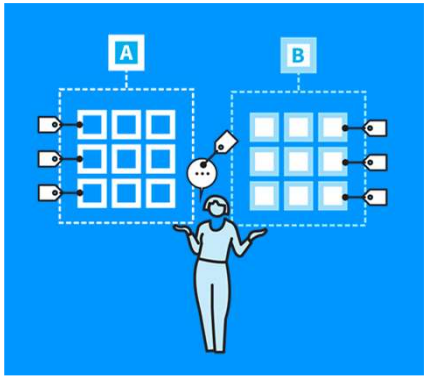
DELIBERATE SCHEMA-BUILDING



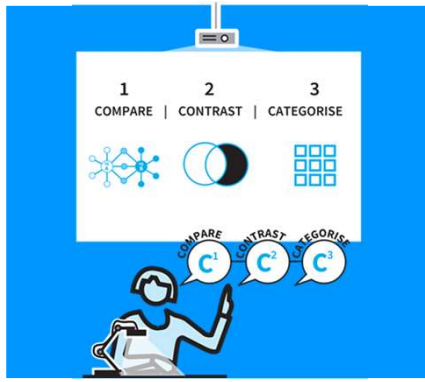
COMPARE: LOOK FOR SIMILARITIES AND DIFFERENCES



CONTRAST: EMPHASISE DIFFERENCES, ALTERNATIVES, CONFLICTS



CATEGORISE: DEFINE, SELECT AND ORGANISE

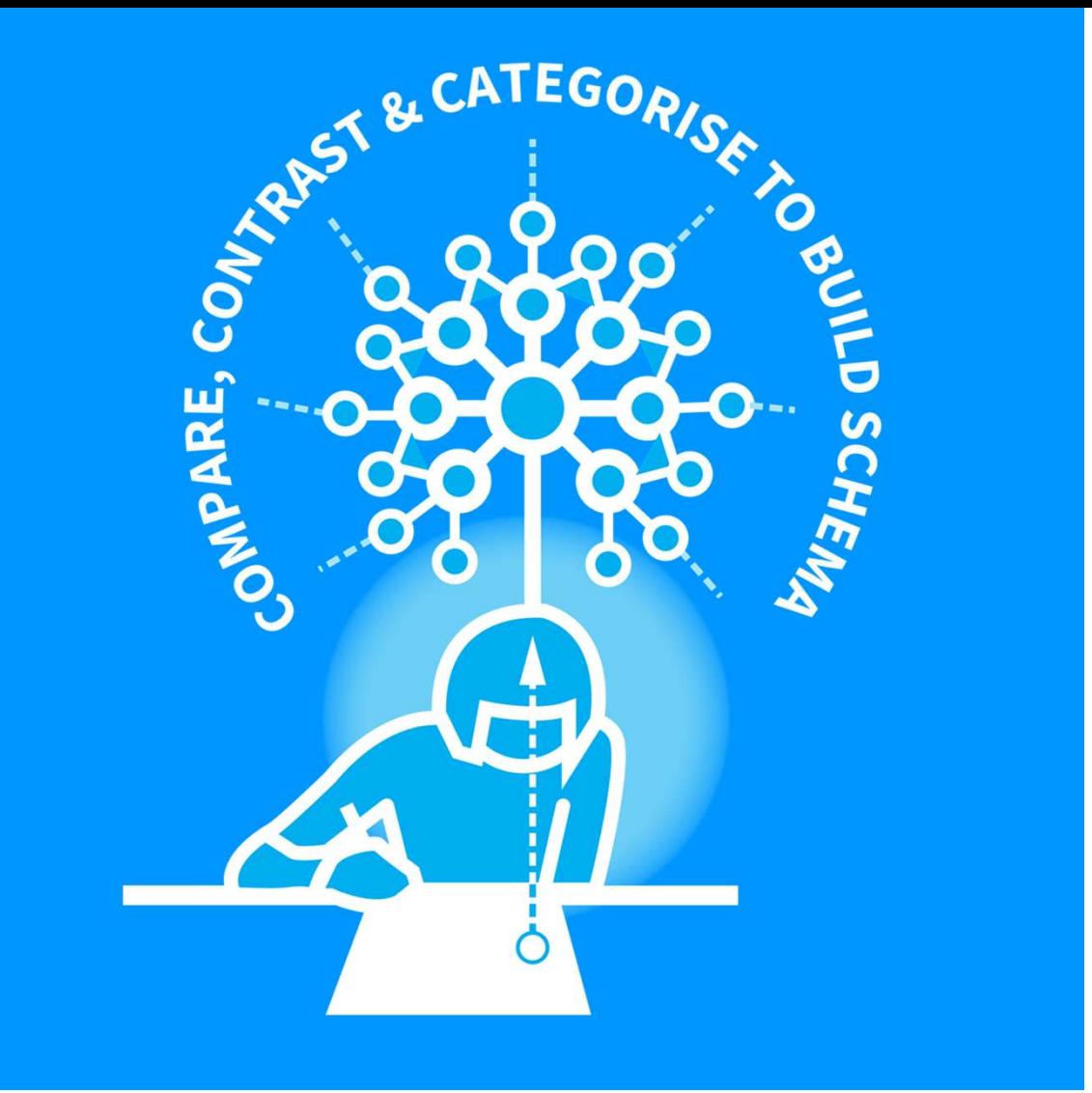


APPLY 3Cs IN NEW CONTEXTS

TEACHING WALKTHRUS
SERIES
EXPLAINING & MODELLING
A|D|A|P|T

- Shimamura's MARGE model includes the idea of framing concepts using the 3Cs: Compare, Contrast and Categorise. This helps in many ways:
- **Attend:** a focus for students' attention, linking new ideas to existing ideas.
- **Relate:** organising information in order to store and retrieve more effectively and fluently.
- **Generate:** to give a structure to retrieval practice activities.

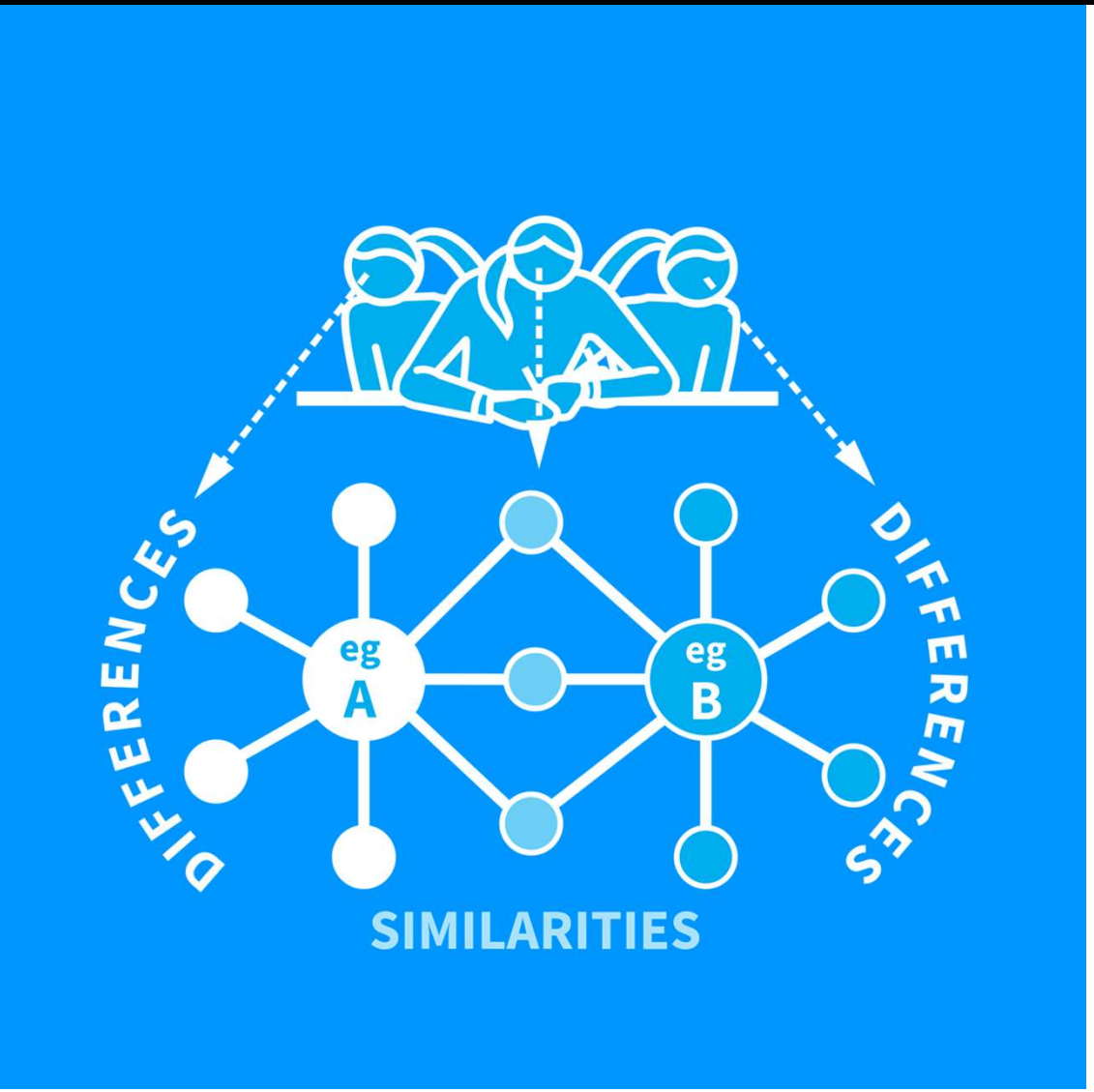
COMPARE, CONTRAST & CATEGORISE



DELIBERATE SCHEMA-BUILDING

- Students encounter ideas in complex, unpredictable ways, then face the challenge of making sense of them.
- Explaining ideas using the 3Cs helps students to make sense of concepts by front-loading the sorting process, presenting ideas in an organised fashion, deliberately and purposefully.
- They still need to make sense of the ideas for themselves but the modelling and scaffolding embedded in the 3Cs supports the process.

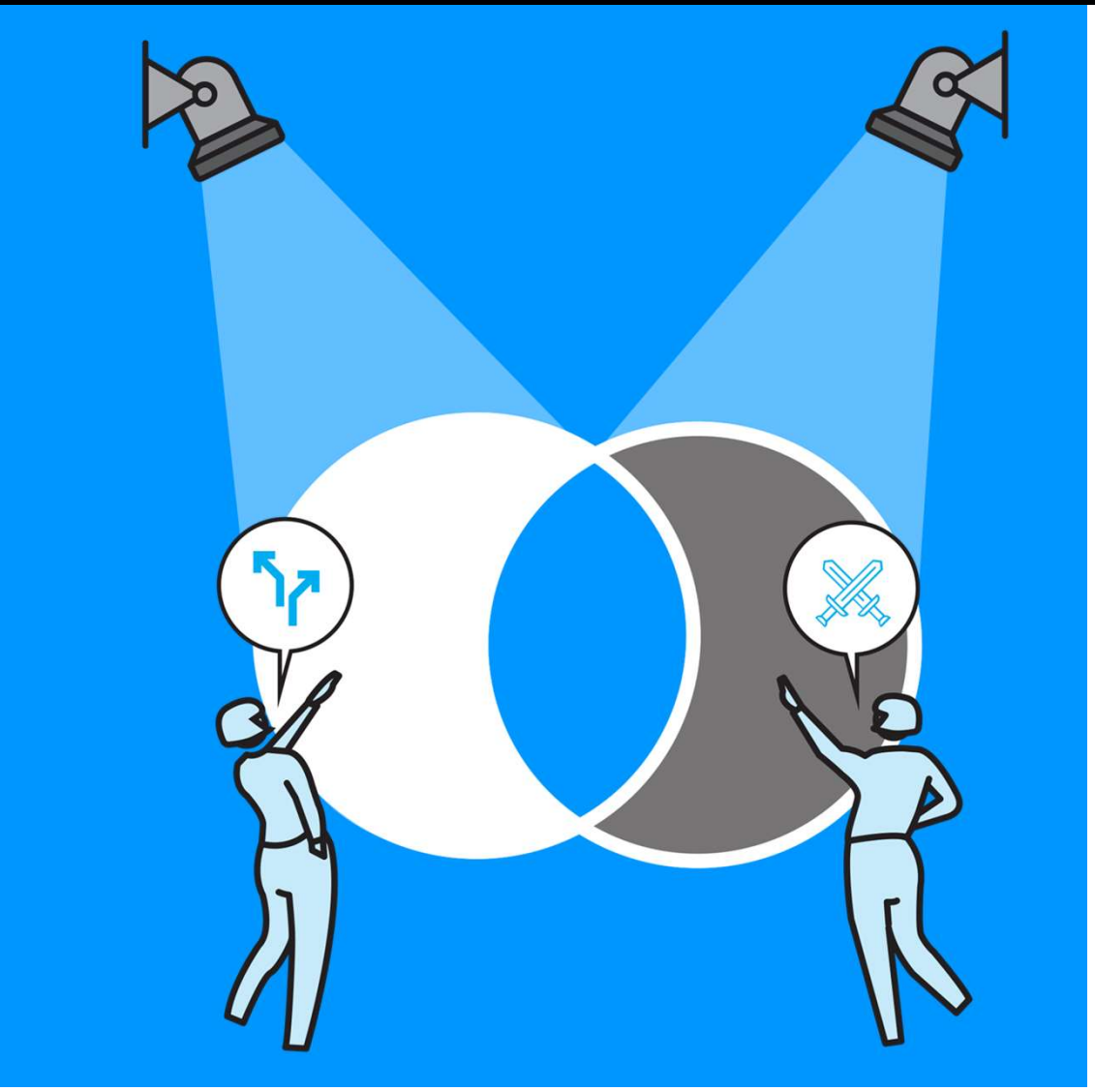
COMPARE, CONTRAST & CATEGORISE



COMPARE: LOOK FOR SIMILARITIES AND DIFFERENCES

- Features of different examples are often better understood by comparing them than by studying them in isolation:
  - A range of perspectives and beliefs
  - Examples of art, music, literature,
  - Exemplars of writing – quality, style
  - Competing methods or explanations
- Set up two or more examples and engage students in looking for and describing similarities and differences.

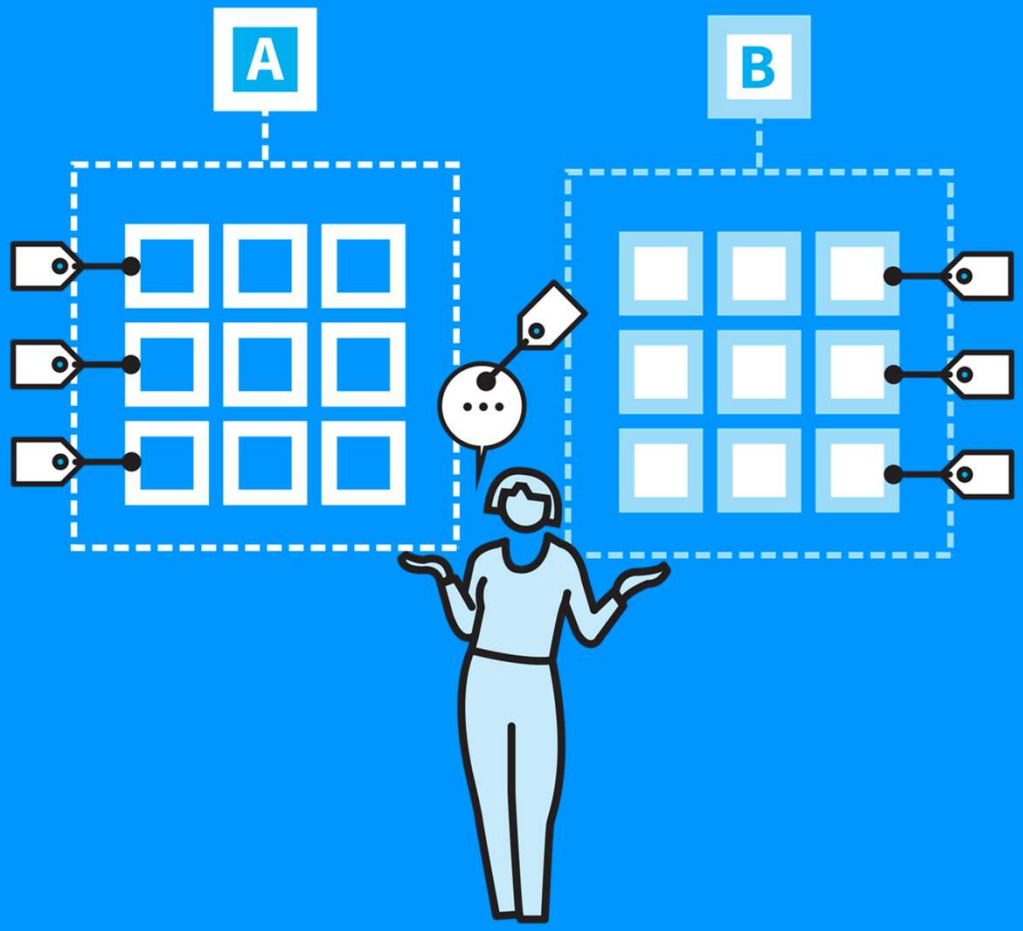
COMPARE, CONTRAST & CATEGORISE



CONTRAST: EMPHASISE DIFFERENCES, ALTERNATIVES, CONFLICTS

- Contrast: a specific form of comparison, emphasising differences to form a deeper understanding of each example:
  - Which is more effective?
  - Which best explains what we see?
  - How are the perspectives different?
  - Can they both be right?
- Ask students to rank examples in terms of accuracy, quality and effectiveness to explore their different features.

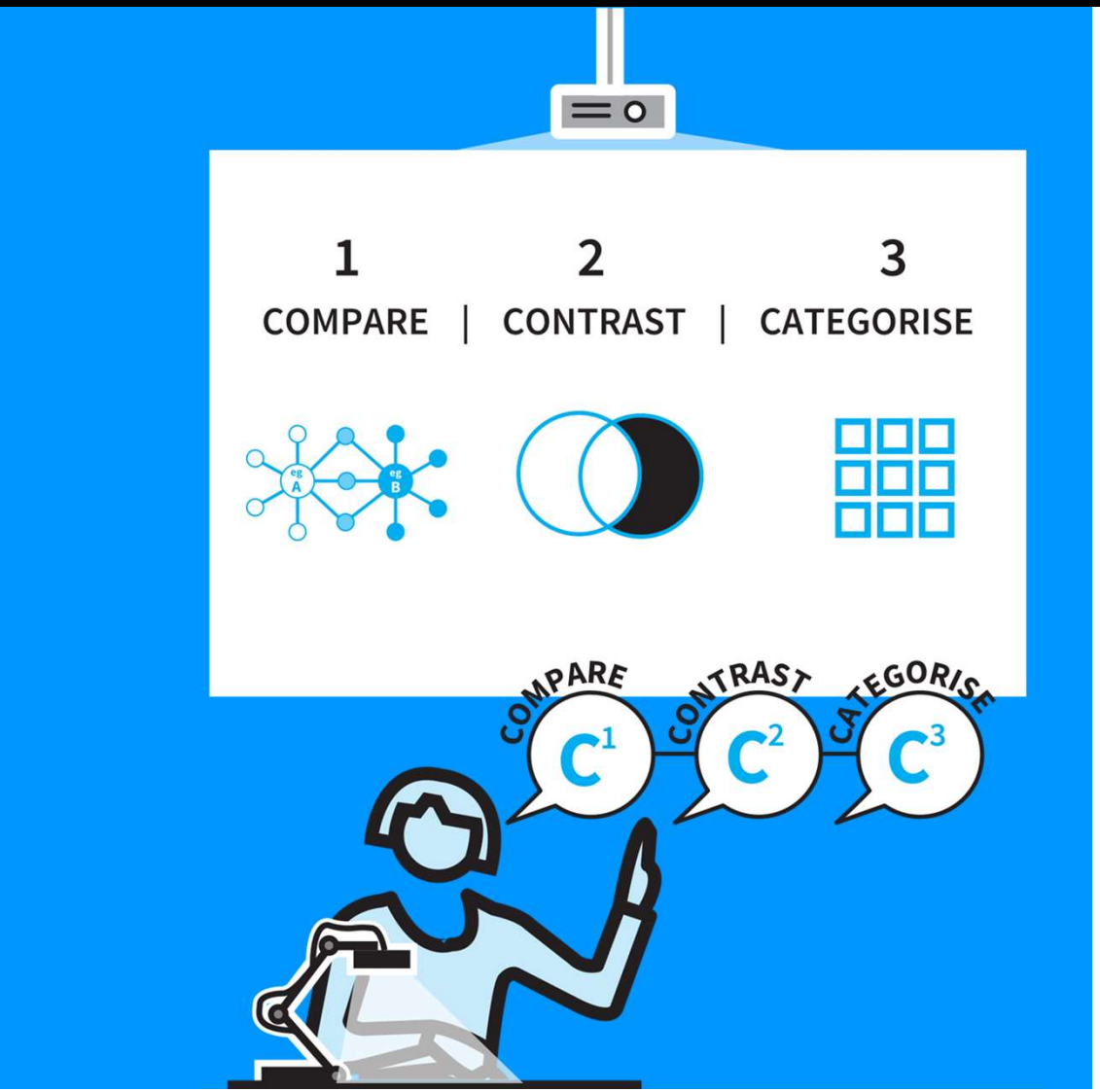
COMPARE, CONTRAST & CATEGORISE



CATEGORISE: DEFINE, SELECT AND ORGANISE

- Present ideas to engage students in understanding defining characteristics of different categories then organising examples according to the definitions:
- *types of materials, living things, energy sources, genres, art movements, grammar terms, cases in languages, historical periods, facts and beliefs*.
- More generally, common categories are
  - advantages and disadvantages
  - positive and negative effects

COMPARE, CONTRAST & CATEGORISE

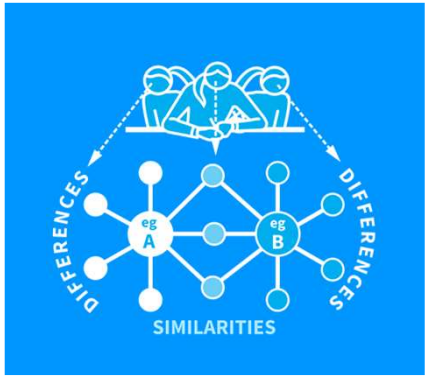


APPLY 3Cs IN NEW CONTEXTS

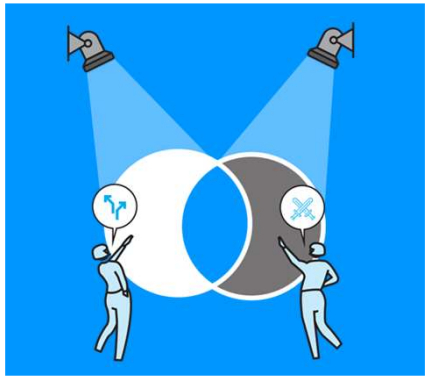
- Model how to compare, contrast and categorise using familiar examples, and check for understanding.
- Then, introduce unfamiliar examples so students apply knowledge of defined categories or features of high and low quality examples to evaluate and organise examples independently.
- Vary the level of guidance according to students' success.
- Include 3Cs questions as part of **Weekly & Monthly Review**.

COMPARE, CONTRAST & CATEGORISE

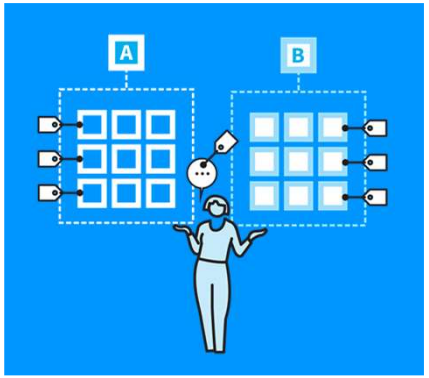
DELIBERATE SCHEMA-BUILDING



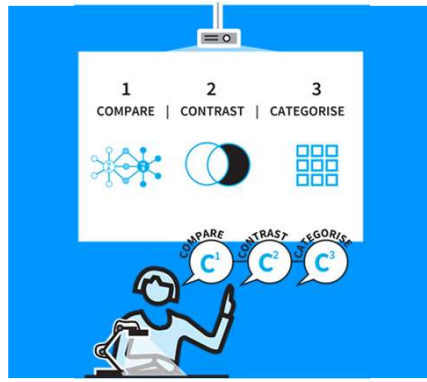
COMPARE: LOOK FOR SIMILARITIES AND DIFFERENCES



CONTRAST: EMPHASISE DIFFERENCES, ALTERNATIVES, CONFLICTS



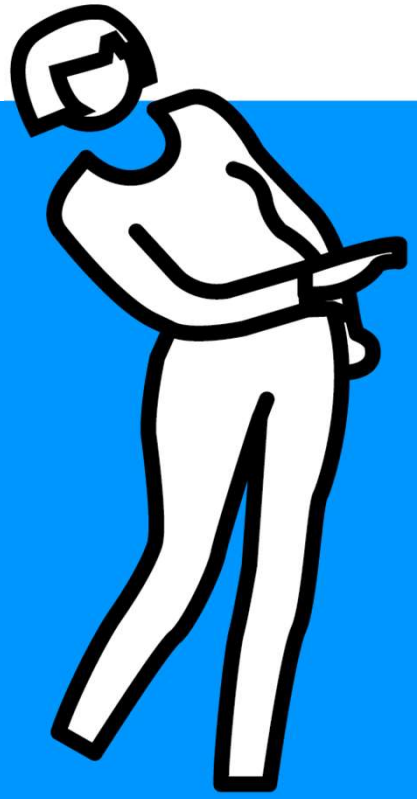
CATEGORISE: DEFINE, SELECT AND ORGANISE



APPLY 3Cs IN NEW CONTEXTS

TEACHING WALKTHRUS
SERIES
EXPLAINING & MODELLING
A|D|A|P|T

- Shimamura's MARGE model includes the idea of framing concepts using the 3Cs: Compare, Contrast and Categorise. This helps in many ways:
- **Attend:** a focus for students' attention, linking new ideas to existing ideas.
- **Relate:** organising information in order to store and retrieve more effectively and fluently.
- **Generate:** to give a structure to retrieval practice activities.



NEXT UP

EXEMPLARS

EXEMPLARS

SERIES

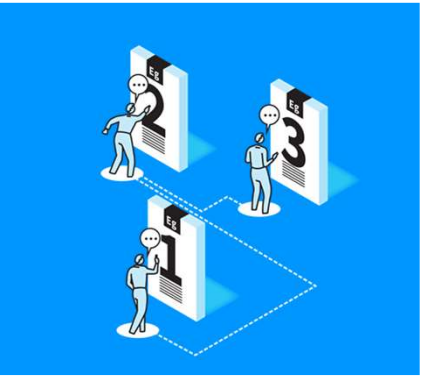
EXPLAINING & MODELLING

1. INTRODUCE AND EXPLORE EXEMPLARS ONE AT A TIME
2. COMPARE AND CONTRAST EXEMPLARS SIDE BY SIDE
3. ESTABLISH PRECISE FEATURES OF SUCCESS
4. CRITIQUE FURTHER EXEMPLARS
5. APPLY THE LEARNING WITH GUIDED AND INDEPENDENT PRACTICE

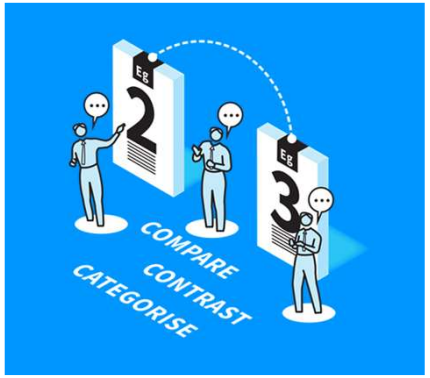
TEACHING WALKTHRUS A|D|A|P|T

EXEMPLARS

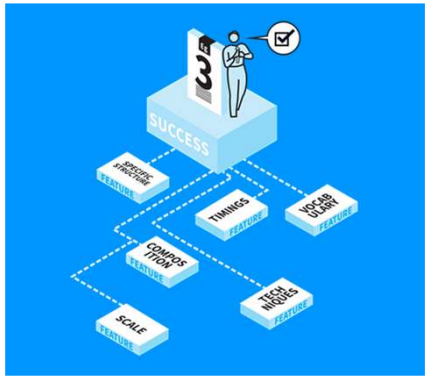
1 2 3 4 5



INTRODUCE AND EXPLORE EXEMPLARS ONE AT A TIME



COMPARE AND CONTRAST EXEMPLARS SIDE BY SIDE



ESTABLISH PRECISE FEATURES OF SUCCESS

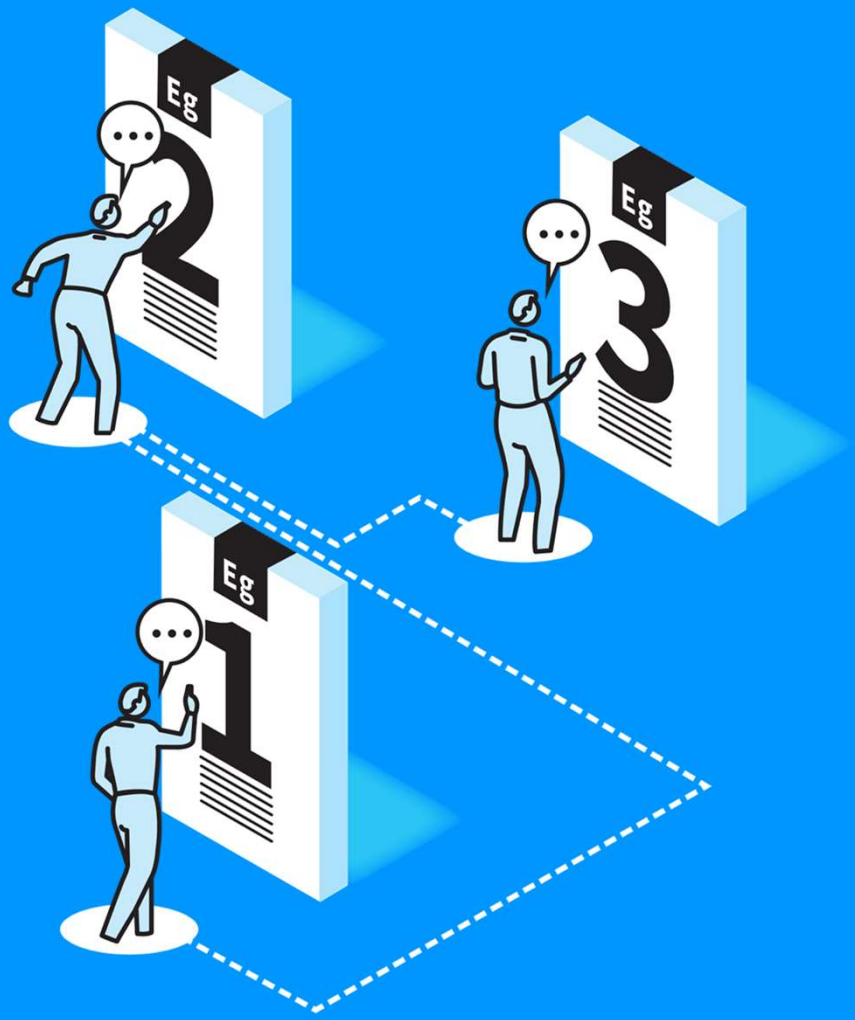
CRITIQUE FURTHER EXEMPLARS

APPLY THE LEARNING WITH GUIDED AND INDEPENDENT PRACTICE

TEACHING WALKTHRUS
SERIES
EXPLAINING & MODELLING
A|D|A|P|T

- A common feature of learning is the process of engaging with examples of work similar to those that students are aiming to produce themselves: *creative products, performances, pieces of writing, essays or projects*.
- In modelling and explaining the process for achieving success, referring to real exemplars of varying quality often communicates the requirements far more effectively than using descriptors or criteria lists.

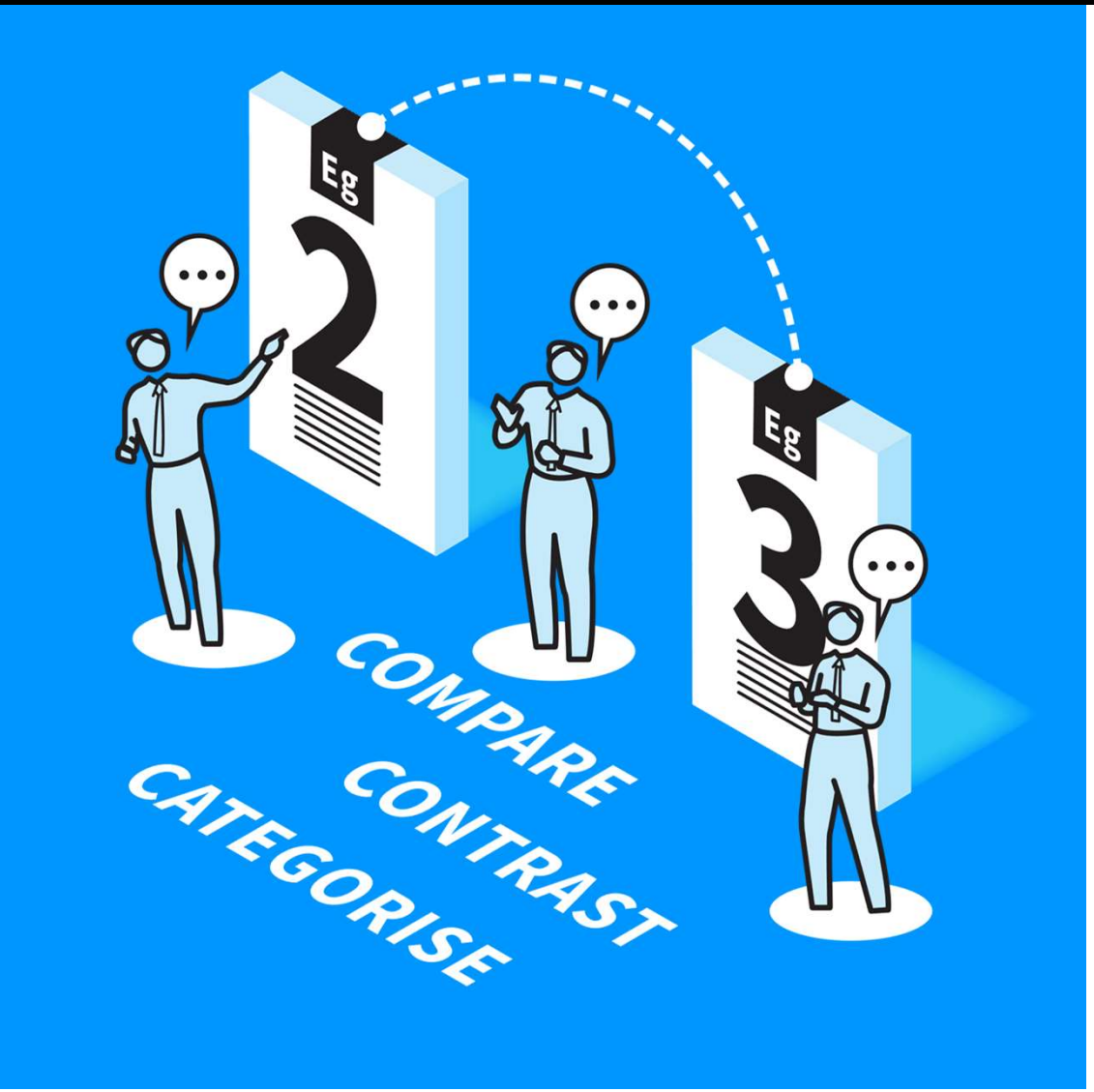
EXEMPLARS



INTRODUCE AND EXPLORE EXEMPLARS ONE AT A TIME

- Make sure each example is explored fully. Consider the best way to do this in practice so that everyone can see them.
  - Does everyone need a copy?
  - Can everyone see clearly if shown on a whiteboard or slide?
  - Does it need to be viewed close up?
  - Would a visualiser be best?
- For each exemplar, explain and discuss reasons why it is successful and how it could be better still.

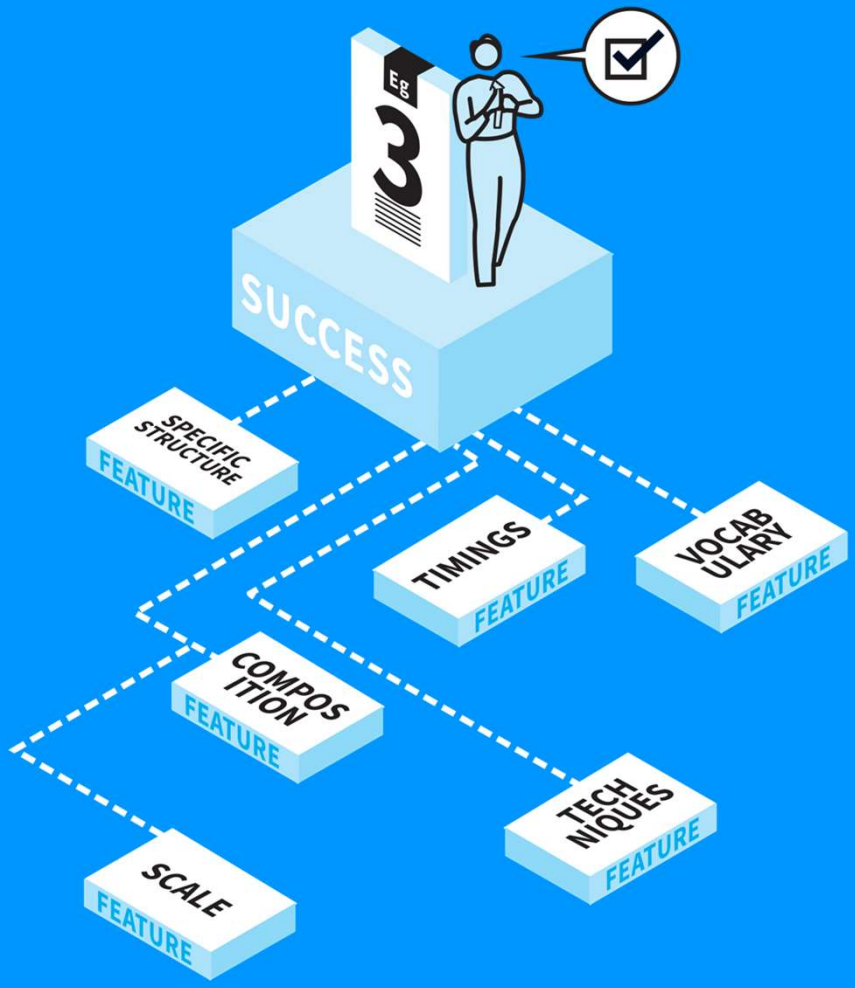
EXEMPLARS



COMPARE AND CONTRAST EXEMPLARS SIDE BY SIDE

- Features of one exemplar become more evident when compared to others. Apply ideas in **Compare, Contrast and Categorise** to two or more exemplars:
- Sample A can be seen to be ***more sophisticated or more succinct*** than sample B. This makes more sense in comparison.
- Drawing A captures tone and form in a more naturalistic style than samples B and C, which are more stylised.

EXEMPLARS



ESTABLISH PRECISE FEATURES OF SUCCESS

- After exploring an exemplar as a whole, identify specific features that might then constitute *success or excellence*.
- Focus on elements that students can later emulate in their own work:
  - *writing structures, vocabulary; compositional elements, techniques in art; quantifiable elements such as word length, scale, timings.*
- Make a list that becomes the **Success Criteria** for students' own efforts.

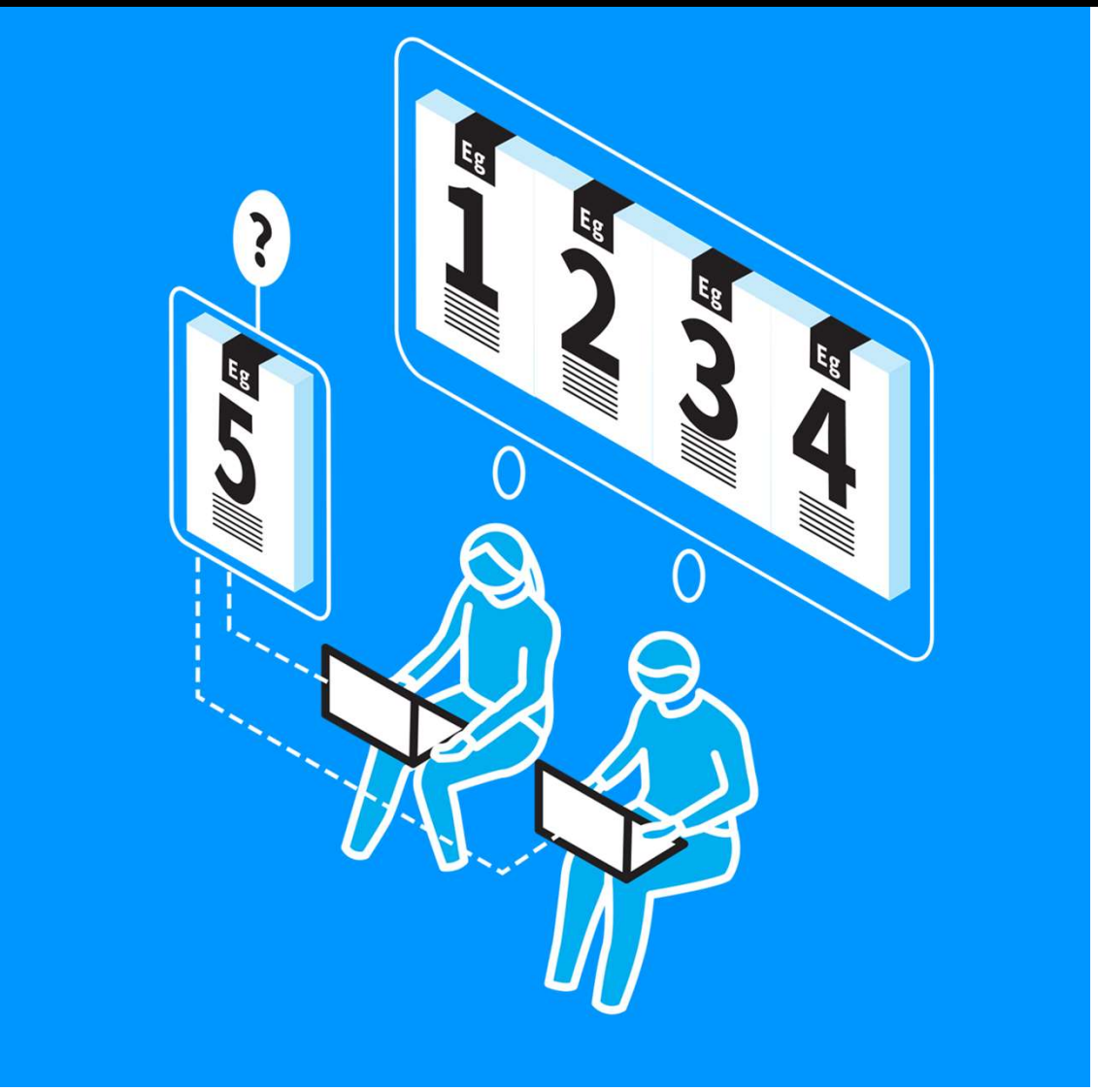
EXEMPLARS

1 2 3 4 5

CRITIQUE FURTHER EXEMPLARS

- Test out the validity of the success criteria on other examples. This needs to be modelled; show how criteria are evidenced in a new example. **Check for Understanding**.
- The goal is for students to recognise features of success in the exemplars and key hinge points that move work from being mediocre to being excellent.
- When ready, invite students to evaluate exemplars themselves, fading back the instructional guidance as needed.

EXEMPLARS

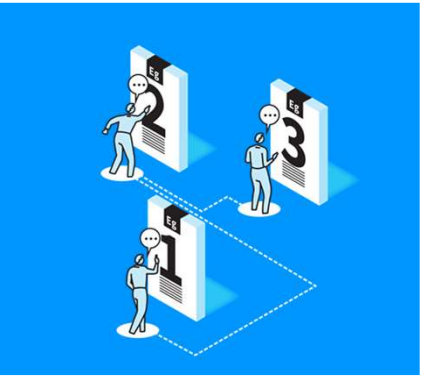


APPLY THE LEARNING WITH GUIDED AND INDEPENDENT PRACTICE

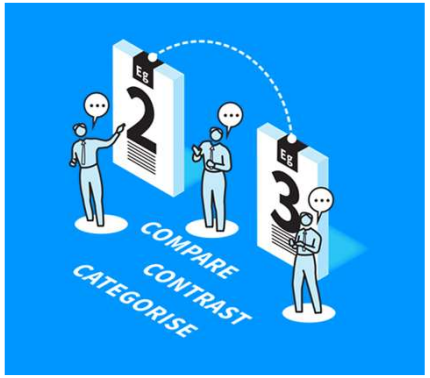
- The end point of explaining and modelling with exemplars is for students to be able to transfer the ideas, producing their own work at the required standard.
- Ensure there is an opportunity for students to put their learning into practice on their own work, with **Guided Practice** and then **Independent Practice**.

EXEMPLARS

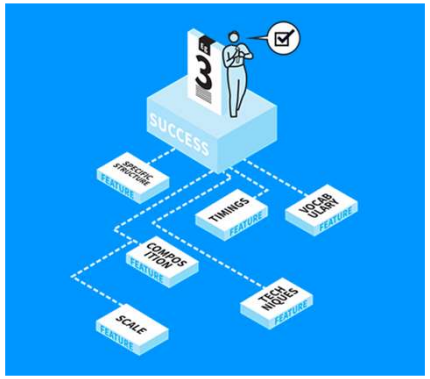
1 2 3 4 5



INTRODUCE AND EXPLORE EXEMPLARS ONE AT A TIME



COMPARE AND CONTRAST EXEMPLARS SIDE BY SIDE



ESTABLISH PRECISE FEATURES OF SUCCESS

CRITIQUE FURTHER EXEMPLARS

APPLY THE LEARNING WITH GUIDED AND INDEPENDENT PRACTICE

TEACHING WALKTHRUS
SERIES
EXPLAINING & MODELLING
A|D|A|P|T

- A common feature of learning is the process of engaging with examples of work similar to those that students are aiming to produce themselves: *creative products, performances, pieces of writing, essays or projects*.
- In modelling and explaining the process for achieving success, referring to real exemplars of varying quality often communicates the requirements far more effectively than using descriptors or criteria lists.